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Mr. Winston Churchill, The Prime Minister.

General Sir B. L. Montgomery, K.C.B., D.S.O., G.O.C. Eighth Army.

A MEETING ON THE EGYPTIAN BATTLE FRONT

August, 1942

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THE WAR IN THE MIDDLE EAST:

JUNE 1940—MARCH, 1942

By Lieutenant-General Sir Arthur F. Smith, K.B.E., C.B., D.S.O., M.C.

On Wednesday, 4th November, 1942, at 3 p.m.

Air Chief Marshal Sir Arthur M. Longmore, G.C.B., D.S.O., in the Chair

The Chairman: It is my duty this afternoon to introduce to you the Lecturer, General Sir Arthur Smith, the present G.O.C. of the London District. He was, as you know, the Chief of Staff to General Wavell in the Middle East from a month or two before the German war started (as distinct from the Italian war, which began a few months later) until March, 1942; so he was there when I arrived to take over as Air Officer Commanding-in-Chief in May, 1940, and when I left in May, 1941. We shared the same headquarters; his office was on the same floor as mine, and I saw him daily during the period I was out there. We shared the same successes and, incidentally, we faced the same set-backs. I think at one time the Army and the Air Force were fighting on five different fronts, so there was plenty going on. Commitments arose which were beyond our capacity to meet, and what those commitments were and what our capacity was you will hear from the Lecturer.

LECTURE

I AM going to speak of the fighting in the Middle East from the G.H.Q. point of view, between the outbreak of war with Italy and my return to England last Easter. Although I shall deal almost exclusively with the Army, that does not mean that I do not recognize the great work done by the other Services.

First of all, look at Map "A." There you will see certain countries marked in green.† Generally speaking, we may say that since the War began those countries were under the command of the Commander-in-Chief, Middle East. (Recently, of course, Persia and Iraq have been formed into a separate command.) The countries marked in pink are, generally speaking, the countries for which the Commander-in-Chief, Middle East, was responsible for plans, military operations and campaigns; they include Rumania, Yugoslavia, Greece, Turkey, Saudi Arabia (which is mainly one vast desert) and Libya, and you will notice that the area near Lake Chad is included, because the Free French were operating from there. The countries marked in red came under the Commander-in-Chief, Middle East, shortly after the outbreak of war; they include British Somaliland, Abyssinia, Italian Somaliland, Kenya, and so on, down to Northern Rhodesia. After the Italians

† The coloured areas mentioned here are shown otherwise on the reproduction of Map "A," facing page 12. See this map for the key to the colours.

had been driven out, these countries became a separate command (the East African Command) directly under the War Office ; but you will notice that Aden still remains part of the Middle East Command. I show you this map to enable you to appreciate the vast area covered by the Middle East Command.

Now, some distances: Cairo to Malta is 1,000 miles ; Cairo to Baghdad is 850 miles ; Cairo to Khartoum is 1,000 miles ; Cairo to Aden is 1,500 miles ; and Cairo to Nairobi is 2,000 miles. Take those distances in relation to the British Isles: London to Edinburgh is 400 miles, which is equivalent to the distance from Mersa Matruh to Benghazi ; but there is this difference, that between London and Edinburgh there are several railway lines, many roads and ample supplies of water, whereas between Mersa Matruh and Benghazi there is only one road, running along the coast (although, of course, there are tracks across the desert) ; there is only one railway (which now goes to just South of Tobruk, and was constructed forward of Mersa Matruh by New Zealand railway engineers during the War), and water is very limited. You will, therefore, see that the administrative problems in the Middle East are very great, owing to the vast areas that have to be covered and the difficulties with regard to communication and water. Compare on Map " A " the British Isles drawn to the same scale. Although figures are often misleading, it is of interest to know that in the Autumn of 1940 the Italian army in Libya numbered 215,000, and in Abyssinia and the neighbourhood 200,000. A total of 415,000, compared to 85,000 British and Indian.

The Middle East Campaigns

I should like you now to look at Diagram " B," which covers the period from the outbreak of war with Italy, in June, 1940, to March, 1942, when I left the Middle East. In the left column are the various countries where fighting took place. The thin lines on the diagram represent the times when we were in touch with the enemy, but there were no major operations or campaigns in progress ; the thick lines represent times when major campaigns or battles were going on, and the dotted lines represent times when, although we were not in touch with the enemy, there was some special security or other problem to be dealt with. For instance, after the Italians had been driven out of Eritrea they withdrew towards Lake Tana ; we had not enough troops to follow them and, indeed, had to send away the majority for further operations in Egypt. Those that were left had the task of ensuring the peaceful administration of Eritrea as well as guarding against any enemy raids. Again, after our recapture of British Somaliland in March, 1941, we had the problem of watching the hostile Vichy French in the neighbouring territory of French Somaliland.

You will notice that we were engaged in no less than seven campaigns during the first six months of 1941, namely, Cyrenaica, Eritrea, Abyssinia, Greece, Crete, Iraq, and Syria. Remember that all those areas are hundreds of miles apart, and in some cases over a thousand. Again, when you note, for instance, that the campaign in Syria started early in the month of June, you must not forget that it entailed weeks of preparation. In every case there were weeks, if not months, of preparation, and I think you will appreciate the tremendous burden thrown on a Commander-in-Chief dealing with so many problems either simultaneously or in quick succession. Personally, I shall never forget the first six months of 1941, and I think it is remarkable that we had the measure of success that we did.

I will not refer to Malta, because, although G.H.Q. was always interested in

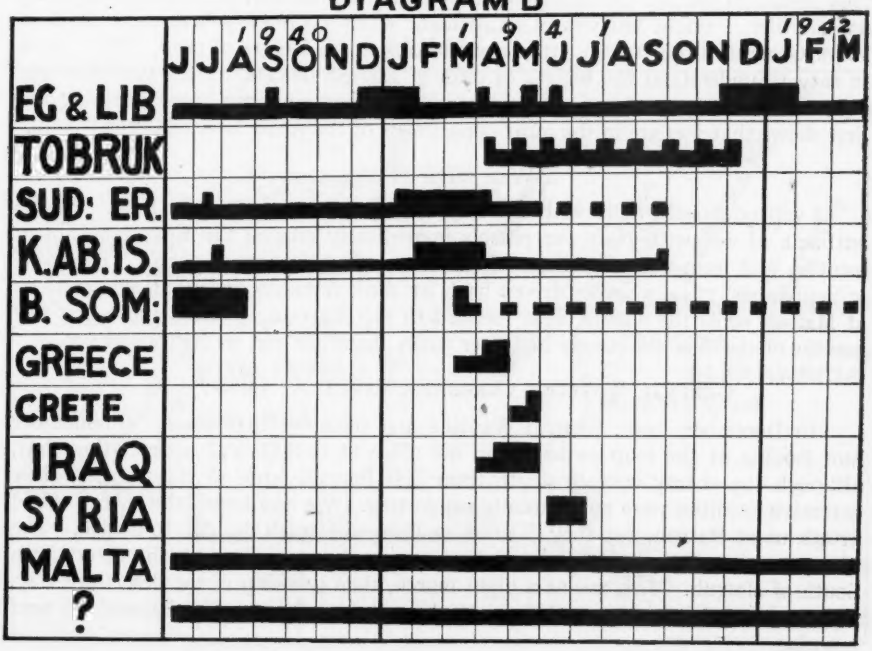
Malta and its various problems, Malta did not come directly under the Commander-in-Chief until early in 1942.

You will notice a query on Diagram " B." Quite apart from the Germans and Italians, there were other " enemies " that we were constantly engaged with and they are represented by that query. First, uninformed criticism. I appreciated the remark made the other day by Field-Marshal Smuts when he said that he would leave strategy to the armchair critics, who had inadequate knowledge, greater freedom and less responsibility. They do harm, and the point to remember is that very often we cannot explain the reason for this, that and the other, because if we did we should give information to the enemy. I ask you never to be guilty of uninformed criticism. That does not mean that you may not criticize, but you should do so in the right spirit, always remembering that you cannot possibly know the whole truth.

The query also covers unfortunate articles in the Press. I remember that on one occasion I received from England a newspaper, which shall be nameless, in which there was a headline in large letters : " 15,000 German Prisoners." I could not think what that referred to ; I looked at our communiqué and it said nothing about it. Then I read the article, and towards the end it was something like this : " It will thus be seen that in the area A.B.C. there must be 15,000 Germans ; and we might capture them." Ninety per cent. of the population who read the headline would at once assume that we *had* captured the 15,000 Germans, and when they found that we had not they would want to know why.

Here is another example taken from the Press. Not very long ago I read in a certain newspaper a short article, the heading of which was something like this :

DIAGRAM B



" Ritchie hoaxed by Rommel," and underneath was an account from an American magazine of how Rommel had sent wireless messages *en clair* in order to deceive General Ritchie as to the disposition of the German tanks, and as a result General Ritchie was completely taken in and moved his tanks into an ambush. As a matter of fact there is no truth whatsoever in the story. But why do some newspapers publish that kind of thing? What is the result of it? Subconsciously the public say " one more dud British General." I do not mind about General Ritchie; he is far too big a man to care; but I do mind from the point of view of the Army as a whole. I respect the freedom of the Press and know that the majority realize their responsibilities and wish to help and not hinder, but I quote these as instances of the sort of things that do happen, and it is indeed unfortunate.

There has been a great deal of criticism about the communiqués in the Middle East. It may interest you to know that no Army communiqué was ever published without first being approved by the Commander-in-Chief or his Chief of Staff. They were only approved if (*a*) they were true, and (*b*) they gave no information away to the enemy. I remember that one day the British Ambassador rang me up (he was always most helpful) and, referring to the communiqué of the day before, said: " I think you ought to know that it has had a very bad effect on the Arabs. Cannot you be more optimistic? " Within an hour I received a telegram from the War Office saying that our communiqué was too optimistic. I therefore thought that between the two we had probably done right that time; it was often difficult to strike the right balance.

Politics are also covered by the query. There was no major military problem in the Middle East that had not a political implication and these were often complicated. It was not always easy to understand our Allies, but I have no doubt they found us British difficult. To show you the difficulty of our understanding one another, I might tell you of an incident when a French officer came up to a Major-General in the British Army and, looking at his badges of rank, said: " It is so easy to understand the badges of rank of English officers. I see you have one pip; that shows you are a Second Lieutenant. Then you have crossed knives, and that shows that you are in the meat department of the Army Service Corps."

War with Italy

I will now deal briefly with the major campaigns in the Middle East. At the outbreak of war with Italy our patrols immediately crossed the Egyptian–Libyan frontier, and from that moment we had command of " no-man's-land." However, in September, 1940, we were driven back by sheer numbers and occupied positions at Matruh while the enemy came forward to Sidi Barrani. During those first few months of the War the enemy had over 3,000 casualties and we had under 200.

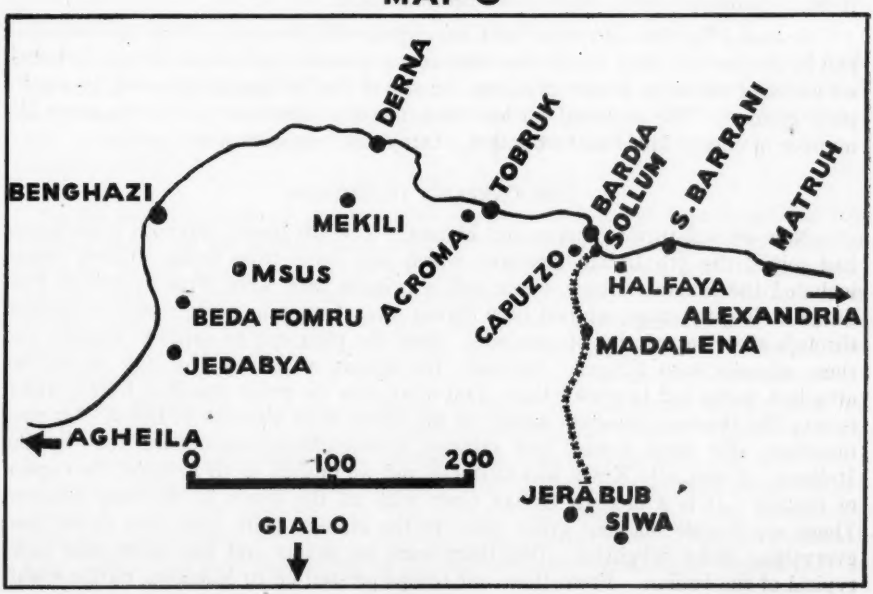
General Wavell's Cyrenaica Campaign (Map " C ")

In December, 1940, General Wavell's first offensive took place. I remember him looking at the map as he sat in his office at G.H.Q. and appreciating that, although the enemy were in depth from Sidi Barrani back to the frontier, their defensive localities were not mutually supporting. We had hoped the enemy would attack us at Matruh, but they did not, so General Wavell decided to attack. The plan necessitated the 7th Armoured Division moving 70 miles into the desert from South of Matruh. This meant a night march, then lying up in the desert one day, then another night march, and then attacking the enemy near Sidi Barrani the next morning.

The essence of success was surprise. That necessitated secrecy and, as far as the Army was concerned, hardly anybody knew about it at G.H.Q. except myself and one or two other staff officers. Only one operation order was issued in writing by the Army Commander, General O'Connor, and almost everything was done verbally. Officers and men who were to carry out the operation were not told till the very last minute. So secret were the arrangements that when the Ambassador asked the Egyptian Prime Minister whether he had heard of the proposed offensive he replied : " No, I did not even hear a rumour ; a thing unknown in the history of Egypt." As a result of this great secrecy, the attack was a complete surprise to the Italians who were caught carrying out a relief. The 4th Indian Division and the Guards Brigade followed up along the coast road and the enemy were driven back to the frontier and many prisoners and much booty were captured. Thus ended the first phase. It may astonish you to know that when this offensive was originally planned we thought we might not be able to carry on for more than five days, because of the shortage of supplies. The old saying that " an army marches on its stomach " is true, but I think it is now more apt to say that " an army feeds on its tail." It was the tail in all these operations that meant success or failure in the forward area. However, in spite of administrative difficulties we pushed on and planned for the next phase.

But before I deal with that, I want to tell you of a remarkable decision made by the Commander-in-Chief. As I said, the 4th Indian Division took part in the first advance, but General Wavell was looking months ahead, and I remember him saying that if we did not clear up Eritrea, Abyssinia and Italian Somaliland by the Autumn of 1941 we should be hard put to it, for we should need all Indian and white troops in other theatres. He, therefore, decided to send the 4th Indian Division down to the Sudan to take part in the Eritrean campaign, substituting in Cyrenaica the newly arrived 9th Australian Division. Yet the Army is criticized

MAP C



because our Generals do not look ahead enough. General Wavell was looking ahead ten months. He made a bold decision and events have proved it was right.

The second phase of the Cyrenaica campaign comprised the attacks on Bardia and Tobruk, both of them strongly fortified places, with a double perimeter, anti-tank trenches, pill-boxes, wire, and so forth. On both occasions there was thorough artillery preparation and attacks were launched by infantry tanks and infantry supported by artillery. The attacks were successful. In each case we got a large number of prisoners and a large amount of booty. By the opening of Tobruk our supply situation was eased and we were able to get supplies by sea.

So we come to the third phase of the campaign. By now the Italians had withdrawn. They had one division at Derna and some tanks at Mekili. We tried to surround the tanks, but failed to do so. We could do one of two things: either go round the coast road and hit the enemy's tail, which would not necessarily be very effective; or cut him off by going across the desert. I can remember the discussions as to whether the latter was feasible, and we felt it was not. Having come to that conclusion, we said: "Very well, we will do it." That was the spirit of all ranks in the Middle East, and so General O'Connor ordered the remains of the 7th Armoured Division (about a brigade group) under General Creagh to flog their way across.

South-East of Mekili there is some bad going over which the remnants of the 7th Armoured Division forced their way, short of food and sleep and water but *not* of courage and determination. They reached Beda Fomru just in time to cut off the Italians escaping down the coast road from Benghazi. The Italians made no less than nine attacks on the British, but all of them were beaten off. One of the attacks succeeded in reaching the headquarters of one of the Greenjacket battalions, but it was repulsed. Those nine attacks failed because they were not co-ordinated. Had the Italian General waited a little longer and co-ordinated them, I think the result might have been different.

So ended the first campaign, with the capture of Cyrenaica. Although we never had in the forward area at any one time more than the equivalent of two divisions, we knocked out eight Italian divisions. Some of the Italians fought well, especially their gunners. We captured no less than 130,000 prisoners; I do not know the number of enemy killed and wounded. Our total casualties were 2,000.

The Campaign in Eritrea

Now we will turn to Sudan and Eritrea. The 4th Indian Division from Egypt had joined the 5th Indian Division, which had come from India. Other troops included the Sudan Defence Force and a brigade with some Free French at Port Sudan. In July, 1940, we had been driven away from our frontier post at Kassala through sheer superiority of numbers. Now the plan was to capture Kassala and then advance into Eritrea. Actually the enemy withdrew the day before we attacked, so we had to pursue them, first of all over the great massif of Keren, which is very like the mountainous country on the North-West Frontier of India. Up that mountain side went a road and railway, a magnificent engineering feat by the Italians. Eventually Keren was captured and we pushed on to Asmara, the capital of Eritrea. It is a modern Italian town with all the goods in the shop window. There are marble plaques, green grass in the streets, palm trees and so on, and everything looks delightful. But there were no drains and the water was bad: typical of the Italian. From there our troops pressed on to Massawa, on the coast,

where about 36 ships were found scuttled. Thus Eritrea for all practical purposes became ours, for the rest of the Italians withdrew to Gondar, just North of Lake Tana, which is the source of the Nile. The campaign was brilliantly carried out by General Platt, who was more recently responsible for the capture of Madagascar. After the occupation of Eritrea the 4th and 5th Indian Divisions moved to Egypt.

The Campaign from Kenya

In July, 1940, we started from Kenya another remarkable campaign. We had previously been driven back from the frontier post at Moyale to Wajir by vastly superior numbers. When this campaign was launched by General Cunningham, he had at his disposal two native African divisions. These were later reinforced by the 1st (white) South African Division. General Cunningham advanced first to Kismayu and then to Mogadiscio. After this to Harar. Finally he captured Addis Ababa. Time will not allow any detailed description. The story is one of British enterprise and improvisation. Shortage of rubber (and not shortage of petrol as some expected) was a contributory cause of Italy's defeat, but the chief cause was our offensive spirit and a willingness to take on the seemingly impossible.

After the capture of Addis Ababa, the 1st South African Division was moved to Egypt and native African troops were left in Abyssinia. Eventually, in September, these finished off the remnants of the Italian forces who had fled to Gondar. British Somaliland, out of which we had been driven by overwhelming numbers in August, 1940, was recaptured by a neat combined operation staged from Aden in March, 1941, and thus the 200,000 Italians who had originally been in Abyssinia and the surrounding countries were accounted for. As I told you, General Wavell had planned to finish the campaign by the Autumn, and you will agree that his very remarkable foresight was rewarded.

The defeat of Italy was the result of a pincer movement by troops from the Sudan into Eritrea and troops from Kenya, as just described. But the difference between German and British pincer movements is that the Germans say," We will do a pincer move," and the British say," By Jove, we have done one ! "

A few months after these campaigns were over, the Duke of Aosta died and I personally think that his death is a great loss. He was a gentleman, loyal to his own country ; had he lived he would have been of great value to us, I believe, in the reconstruction of our relationship with Italy after the War.

The Greek Campaign

We will now turn to Greece. The northern frontier of Greece extends from Thrace along by the Roupel Pass to the Monastir Gap which is on the boundary between Serbia and Greece. The number of troops we could send to Greece was limited and certainly insufficient to hold so long a front, even with the aid of the Greeks. By agreement, therefore, with the Greek Government, it was eventually decided to hold the frontier passes lightly with Greek troops and to occupy a main defensive position South of the Salonika valley running along the Aliakmon river.

Very briefly the campaign was as follows : The Aliakmon position was held by the Central Macedonian Army, under the command of General Wilson, consisting of Australians, New Zealanders, British and Greeks. General Papagos was in supreme command. You will remember that before the Germans advanced into Greece a *coup d'etat* took place in Yugoslavia ; consequently we very much hoped that the Serbs would be able to delay any German advance through the Monastir Gap. This, however, they failed to do, and when the Germans advanced they got

through the Monastir Gap and thus threatened our left flank. We, therefore, had to withdraw and evacuate the country—actually we evacuated 80 per cent. of our troops, though we lost all the heavy equipment.

Two main criticisms have been made about the campaign in Greece. The first was the failure of our " Air " and the second was that we did not make arrangements early enough for withdrawal and evacuation. With regard to the first, our Air Force simply had not got the machines—on one occasion a message arrived at the aerodrome at Athens that two hundred Axis aeroplanes were crossing the northern frontier. What was the reaction of our R.A.F. ? To send up their ten remaining machines--ten against two hundred ! That was, and is, the spirit of the R.A.F. With regard to the second criticism : At the very outset an officer arrived in Greece to plan withdrawal and evacuation should this prove necessary. He was forbidden to tell anybody about his task except the two Commanders concerned. In addition to that, the joint planning staff of the Navy, Army and Air Force at G.H.Q. in Cairo drew up a plan under the direction of the Commanders-in-Chief. I think that disposes of the criticism that we had not prepared adequately.

The withdrawal was well carried out except in two cases. In the first, one of our ships was sunk by enemy action and was therefore not available to take off troops ; in the other case, owing to the faulty local disposition of a unit on a beach, the Germans got possession of that beach and the Navy, noticing the Germans in possession, quite rightly did not bring their ships in. Although we counter-attacked and drove the enemy off, we lost the chance of evacuating those men—simply because a local commander failed to ensure local protection. No words can say what we owe to the Navy for the marvellous way in which they carried out the evacuation.

There is another point that I want to mention. There were two critical days during our withdrawal, and on those two days the weather was too bad for the enemy " air " to operate. That is not the first or only occasion on which I have been convinced that God Almighty has been helping our cause. It is untrue to say that our campaign in Greece was a forlorn hope. It was a military gamble ; we took the gamble, and I believe it proved well worth while, as I will explain later. If we had never gambled in the Middle East we should be in a sorry plight now.

Operations in Crete

To turn to the campaign in Crete. Many of the troops from Greece were evacuated into Crete, whilst some went straight to Egypt. You will remember how the Germans sent their parachutists to Crete, regardless of loss of life, and eventually we had to leave. The Germans paid a tremendous price for their capture of Crete. One attempt to land by sea was completely frustrated and, as far as I know, every ship and every German taking part in that attempt was lost. In the case of Crete also, the Germans had complete mastery of the air. I think I am right in saying that we had only three machines left at one time, and it was thought better to bring them back to Egypt to breed from, so that we might have some later on.

We have been criticized for not having got Crete ready in time. It is quite true that we had not. Why not ? We needed concrete, and we had not enough concrete for the Western Desert and Palestine, let alone Crete. We had not enough tools for the Western Desert and Palestine ; and, when some were available, 50 per cent. were sunk on their way to Crete. Even if we had had tools and concrete, we should have needed labourers. We might have mobilized everybody in Crete, but that would have been no use without lorries in which to take the men and women

to work and we had not enough lorries for other Middle East theatres—we lost 8,000 in Greece. It was not that we had not realized these things; it was that we were always living from hand to mouth and never had enough either of men or of equipment. That applied as much to the Air Force as to the Army.

We went from Crete to Egypt, and once again I should like to pay a tribute to the Navy. During the last few days before the evacuation no ship could live within fifty miles of Crete except fast warships. That did not deter the Navy from taking troops off from Heraklion and Spakia; they did magnificent work, but they lost heavily. What was the spirit of the troops when they got back to Egypt? It was the amazing spirit which must completely confound Hitler & Co. Judging by the spirit of the men, we might have had a magnificent victory. It is a British characteristic that we do not know when we are beaten. This gives me an opportunity of emphasizing once again the magnificent morale of the men of the British Navy, Army and Air Force in the Middle East.

Operations in Iraq

I will now deal very briefly with the campaign in Iraq. We knew that the Germans were becoming interested in Iraq. We knew that the Prime Minister (Rashid Ali) and four leading army officers (known as the Golden Square) were co-operating with the Axis. We had a treaty of alliance with Iraq whereby we were allowed to send troops from India to Basra, thence to send them by rail to Baghdad and thence across to Palestine and Egypt. It was decided to land troops at Basra. We informed the Iraqi Government, who could not object, because it was in accordance with the terms of the treaty. We did not, however, move the troops up to Baghdad but left them to secure the base.

A fortnight later another brigade landed, and that was too much for the Iraqis. And so one morning the British Air Force station at Habbaniya, about fifty miles from Baghdad, found about 9,000 Iraqis surrounding the R.A.F. encampment. The Iraqis had machine-guns and artillery and some aeroplanes. We had in Habbaniya about 1,000 R.A.F. personnel, some armoured cars manned by the R.A.F., 350 infantry who had been flown from Basra, and some Iraqi levies. We had no guns and I do not think the R.A.F. had any machines, except one or two instructional ones. In Baghdad all the British and American subjects had been imprisoned in the Embassies.

The situation was extremely critical and something had to be done. Somehow we managed to form the equivalent of a mechanized brigade group from the cavalry division in Palestine, and they, together with the Trans-Jordan Frontier Force and an infantry battalion which had previously seen service in the Sudan, proceeded to go to the relief of Habbaniya. This took time, as you can imagine. Ours was a very weak force, but by sheer bluff Habbaniya was relieved. Our weak force went on to Baghdad, where again we won by sheer bluff. The Mayor of Baghdad came out to make terms, and an armistice was signed. The next day the Regent came back to the throne, and we sent a small detachment to Mosul to watch our oil interests in Northern Iraq. From that time things have gone well for us in Iraq, with a friendly Government in power.

The Occupation of Syria

Meanwhile, we were anxious about Syria. We knew that the German plan was to get control of Syria by fifth column, propaganda, etc., and to use the aerodromes for action against us in Iraq. General de Gaulle was insistent that Syria must be

occupied. We were ordered from home to carry out the advance into Syria not so much as a military operation as " a political gesture." An odd way to wage war, but events proved the British Government to be right. And so we advanced into Syria. On the right there was an Indian brigade, followed by the equivalent of a Free French division and, on the left, near the coast, an Australian division advanced along two parallel roads. Later we managed to form the 6th Division of two brigades. We were one battalion short, so we put in our one and only battalion of Czechs. When we crossed the frontier the Vichy French, realizing how weak we were, put up a resistance. They had 90 tanks and we had not one ; we could not spare any tanks from the Western Desert. Our Air Force was weak but co-operated—as usual—to the best of their ability. We plugged along, and eventually the Free French pushed through the Indians on the right and captured Damascus. General Legentilhomme, in command, was wounded in the arm but remained at duty. On the left the Australians advanced, and a commando was landed behind the positions occupied on the coast by the Vichy French. As supplies and equipment became available, we used them. Lorries taken off the boat at Suez were sent straight up to Syria. Gradually we wore down the French opposition. But it was not until after the fall of Iraq, when small columns from Iraq began to penetrate into Syria from the East, that General Dentz, who was then commanding in Syria, asked for an armistice. General Wilson then called the appropriate people together and armistice terms were signed. While signing, all the lights went out and complete darkness reigned, and during that darkness I regret that a British soldier pinched a French General's gold hat as a souvenir !

The German Time Table

Now to go back for a moment to Greece. The Greek campaign put out the German programme by six weeks. That delay was of the greatest value to the Russians. Not only did it give them six more weeks for making preparations, but it shortened the time before winter set in. I believe that on that score alone Greece paid its dividend. Again, if we had not gone to Greece, Iraq would not have gone off at half-cock. We should not have got Iraq so easily and, indeed, we might not have been successful in Syria. I believe our intervention in Greece was right on political, Gmoral and strategical rounds.

The Situation in Cyrenaica

We must now return to Egypt and Libya. You will remember that we had got to the point where the 7th Armoured Division had occupied Jedabya. We hoped that the Axis would not counter-attack before the end of April, 1941, and so we took a chance—one of many. Our luck was out, and Rommel attacked at the beginning of April. The 7th Armoured Division was badly in need of overhaul. It had therefore been relieved by the newly arrived 2nd Armoured Division (less one brigade which had to go to Greece). When its commander arrived in Cairo he went to General Wavell and told him that his men had not been trained to the desert, that his tanks were barely battle-worthy, that sand filters had not been fitted and that the tracks were nearly worn out. Also that the new Australian tracks had been found faulty, " but," he added, " we have a lot of track pins." General Wavell then quietly remarked : " Well, let's be thankful for the pins." In passing, I should remark that the divisional commander's attitude was not : " We can do nothing," but : " That is the situation ; in spite of it, we will, of course, do our utmost."

And so we had in Cyrenaica, in addition to two brigades of the newly arrived 2nd Armoured Division, the 9th Australian Division which was also newly arrived

and had not finished its training ; but only two of its brigades could go right forward because we had not enough transport for three. The 9th Australian Division took the place of the 6th Australian Division (which had taken part in the capture of Cyrenaica) as the latter had to go to Greece. In addition, we had an Indian cavalry brigade, mechanized, but without a single anti-tank gun, because we had not one to give them. That shows the position. We took the risk, and this time we lost. The Germans and Italians attacked and we were driven back. We then had to take the great decision as to where we should stand—whether at Tobruk or Bardia. Eventually it was decided to stand at Tobruk ; we thought it would be for a maximum of four months, but it proved to be nearer nine months. The reason for holding Tobruk was largely to deny that port to the enemy, as the possession of it was vital for obtaining supplies. And so we held Tobruk as an isolated fortress, while other troops occupied defensive positions near the frontier between Egypt and Libya.

General Auchinleck's Offensive in Cyrenaica

The next big offensive started in November, 1941. We knew we could not deceive Rommel as to the fact that there would be an attack ; we could only hope to deceive him as to the time and place, and we succeeded in both. I cannot tell you how we did that, but it was a very brilliant piece of work. Rommel was actually in Rome when we advanced, and it was twenty-four hours before his headquarters realized the size of our attack. Our tanks crossed the frontier and swung North towards Tobruk. Heavy fighting took place between the armoured forces of both sides and, although we had thought that we had superiority in men and equipment, we were disappointed to find that the Germans were ahead of us with their anti-tank gun, and this weapon knocked out a large number of our tanks. We had to do something about it and I well remember General Auchinleck's inspiring leadership as he impressed on everybody the need for hanging on, hitting hard and giving the enemy no rest. And so we formed small offensive columns, containing armoured cars, motor infantry and the hard-hitting 25-pounders, to harass the enemy. Meanwhile, our tank forces were being reorganized, and later we were able once again to drive the enemy back. This time to El Agheila.

During the fighting we had knocked out two-thirds of the original Axis army of 100,000, and that in itself was a very substantial success. Also, our Navy and R.A.F. sank a very large proportion of enemy shipping bringing reinforcements of men and supplies to Tripoli from Italy.

However, once again we were driven back, partly because the enemy counter-attacked before we had been able to build up reinforcements of equipment and supplies ; this, in itself, was partly due to the time taken in re-opening Benghazi as a useful port. A contributory cause of our failure was that our troops were insufficiently trained. And so, when the enemy attacked, we were driven back to a defensive position about Acroma ; and that was the situation when I left Egypt in March, 1942.

Shortages of Men and Equipment

I should now like to try to give you a picture of the shortage of equipment and troops in the Middle East during the first period of this war. In 1941 we were 30,000 men short of our normal reinforcements, including 6,000 trained signallers, which necessitated the conversion of two yeomanry regiments into Signals. Another yeomanry regiment had to be converted to coast artillery as we were so short of gunners. We thought nothing of doing that sort of thing. At one time we were 50,000 vehicles short. An incident which comes to my mind is when another anti-

tank battery was urgently required in Greece. We managed to get some gunners and we managed to get the guns, and we formed them into a battery. It was agreed that they should march down by the desert route from Cairo to Alexandria, leaving at 10 o'clock on the following morning. Before the conference broke up the senior gunner officer said: "The men have not fired an anti-tank gun yet." So orders were given for some ammunition to be issued to them, and the march was started two hours earlier, at 8 o'clock. During the march from Cairo to Alexandria, the men learned to shoot in the desert, and on their arrival at Alexandria they were fit for war.

True, in the Middle East we have taken knocks, but they are nothing in comparison with our successes, especially in view of the great difficulties. I cannot speak too highly of the morale and the *esprit de corps* in the Middle East, not only of the British and Indian troops, but also of the Free French, Poles, Czechs, Yugoslavs and Greeks. Once again may I pay a tribute to the work of the Navy and R.A.F. throughout all these campaigns. There have, I know, been criticisms of the R.A.F., always based on ignorance. Nothing could have been closer than the co-operation that existed between us. Whenever General Wavell was out of Cairo on a visit, as he sometimes was for a few days at a time, never did a day go by without Sir Arthur Longmore personally ringing me up or having the courtesy to come to see me. With all three Services represented at the daily Intelligence Conference, the daily Operational Conference and on the Joint Planning Staff, I can assure you that the co-operation, understanding, good will and friendly feeling were first class.

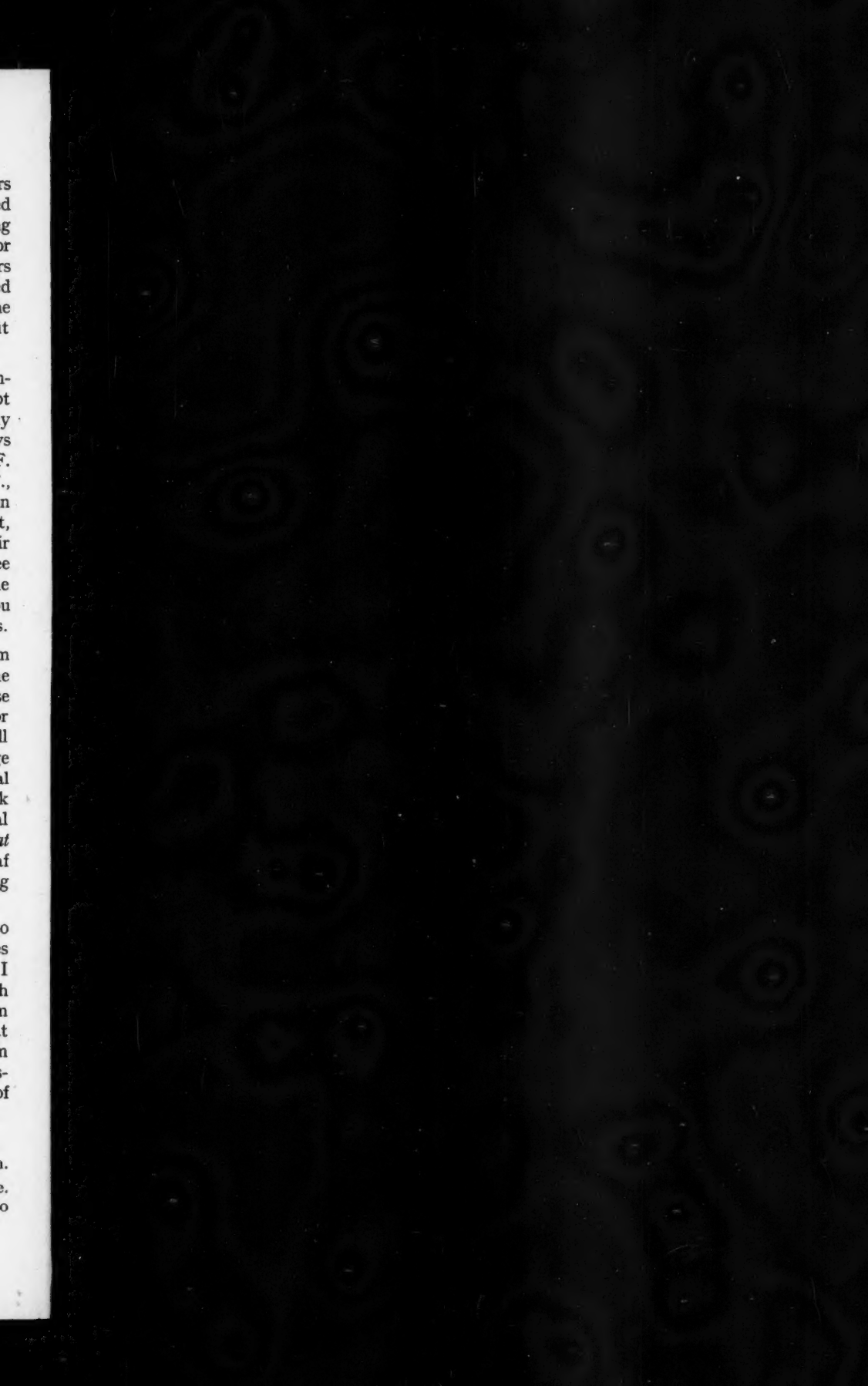
Remember, the Commanders-in-Chief were never confronted with a problem from only one angle; always there were the naval aspect, the army aspect, the air force aspect and the political aspect, but the machine worked smoothly because of the good will and understanding and co-operation that prevailed. Take, for instance, the Suez Canal, where there is the greatest co-operation between all Services, as is exemplified by the following story. A deaf admiral was in charge of the naval interests on the Canal, and a deaf General was in command of the Canal area. One cold morning the deaf General said to the deaf Admiral: "You look rather *cold*," and the Admiral replied: "I am not as *old* as you are." The General said: "Would you like the *heat on*?" and the Admiral replied: "No, I was *at Harrow*." The deaf General said: "Weren't you a *retired* officer." The deaf Admiral replied: "You look more *tired* than I do." How could things go wrong with such friendly understanding?

I should like to thank the Chairman for coming here to-day, and I wish to express my gratitude to him for his help to me in the past. With all three Services pulling together I have not the slightest doubt that we shall win this war, but I am not at all sure that we as a nation deserve to do so. There has been too much love of pleasure and too little attention to duty. Too much of the spirit "What can I get out of it?" instead of "What can I put into it?" No, I am not sure that we deserve to win, but I am absolutely sure that the Axis deserve to lose. I am convinced that ours is a righteous cause. Almighty God is on the side of righteousness. How important then for us, individually and nationally, to be on the side of Almighty God.

THE CHAIRMAN

We have listened to a very interesting Lecture, covering a period of intense action.

I should like to thank the Lecturer very much for his remarks about the Air Force. I sometimes think that the Air Force is to the Army as a worthy wife to a husband who



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BELGIAN CONGO
S. ATLANTIC
ANGOLA
N. RHODESIA
S. RHODESIA
S. W. AFRICA

MAP A

MIDDLE EAST

RED PINK GREEN

does not take much notice of her when she is there, but calls very loudly for her when she is not there. When he appreciates her and thanks her for all she has done for him, she is very grateful to him. I am quite sure that the Air Force in the Middle East has from the very start done its utmost for the British Army, not only in Libya and Egypt but also in the Sudan and Kenya. The Air Commodore in the Sudan lived in the same Headquarters as the G.O.C., General Platt, and in Syria the Air Commodore who worked with General Wilson shared his Headquarters. In all the campaigns to which the Lecturer has referred, the Air Force was linked closely with the Army.

When the Italians invaded Greece through Albania, on 28th October, 1940, within ten days the Air Force had started to send over a squadron to the Greeks to help them. The R.A.F. were actually operating in Greece against the Italians from the beginning of November, 1940, until the eventual evacuation. The Germans attacked Greece over the Macedonian frontier on 6th April, 1941, when the Air Force had been operating in Albania in support of the Greeks for several months. I visited them there on many occasions and saw the grand work that they were doing. I mention that because it shows that we were already half committed to Greece. Were we to withdraw that force or send no army with it because the German threat appeared on the Balkan front ? I agree entirely with the Lecturer that, apart from its being a military gamble, we had a distinct moral obligation to support Greece, and I think that when the history of the War comes to be written that will play a very prominent part in it.

I should like to point out that one remarkable success of the Army and the Air Force in the Middle East was the re-establishment of the Negus on his throne in Ethiopia. We promised him that we would do that, and we have done it, It took us five or six years, but he is there now and has been given every opportunity to put his country into order, and we are supporting him. The reason why there was not very much published about that was that Addis Ababa fell on 5th April, 1941, and the German invasion of Greece took place on 6th April, completely overshadowing the fall of Addis Ababa.

May I conclude by thanking General Sir Arthur Smith very much indeed for his extraordinarily interesting Lecture.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

ECONOMIC WARFARE

By Colonel C. G. Vickers, V.C.

On Wednesday, 25th November, 1942

The Right Hon. The Earl of Selborne, P.C., Minister of Economic Warfare, in the Chair.

The Chairman, in introducing the Lecturer, said that there was no one better qualified to explain the work of the Ministry of Economic Warfare than Colonel Vickers. He was one of those men who, while pursuing peaceful avocations in our civil life without fame, were immensely competent and formed a great national reserve of knowledge and ability upon which England relied in times of crisis. The men and women at the Ministry were doing a most vital job in the war, and although the fruits of their labours were not always apparent in the newspaper headlines, those who knew the inner facts know that many events of great importance had their origins in the work done by these " back-room boys " of the Ministry of Economic Warfare.

LECTURE

FOR more than a hundred years, as I understand, this Institution has been concerned to promote naval and military science. I hope it has had many lectures on Economic Warfare, because economic war is an integral part of naval and military science. When I say " economic war," I do not mean only that part of the war which is fought with economic weapons, that part to which my Minister has just referred and which his Ministry controls; I mean all that part of the war which is aimed at economic objectives.

Economic war is waged outside the enemy's frontier by blockade—with all its modern refinements, by commodity control, shipping control, financial and economic pressure, diplomacy, pre-emptive purchasing; it is waged inside the enemy's frontier and in his waters by the Navy, the Army, the Air Force, the executants of political warfare, and by all the millions who, consciously or unconsciously, are resisting inside German-occupied Europe. It is in that widest sense that I chiefly think of economic war and chiefly want to speak of it to-day—the attack on the enemy's economic fighting power, on his power to keep his forces armed, equipped, munitioned, fed, mobile, which is, I suppose, the greatest single element in his power to resist, and therefore the greatest single objective of total war.

So I would like to begin by considering what is this power to go on fighting, this economic war potential; of what does it consist? How can it best be destroyed? That will lead us to take for a moment a very general view. If we could look down upon the world from some Olympian point of view, seeing it like an ant-heap, to observe its economic activity, I suppose our general impression would be of men with machines, harvesting stuff from the soil and the sea and digging it out of the ground; carrying it about; passing it through process after process, by successive applications of transport and power; and finally either consuming it or using it to make more machines. If we looked more closely to see what it was that was being carried about, we should see that 75 per cent. of the whole was food and another 10 per cent. was fuel. In other words, of the whole of the world's raw materials, 85 per cent. goes straight back into energy, whilst 15 per cent. takes care of all the rest—a percentage which I always find very surprising.

Food and fuel are peculiar not only in their bulk, but also in that they are fundamental, as nothing else is fundamental. They cannot be substituted. Human and mechanical energy reacts immediately to any restriction on their supply. Other things may have deferred effects: men ill-clothed can manage for a time; men

ill-housed can live in caves; machines ill-maintained may yet go on running. But machines without fuel stop; men without food die. That is one of the most fundamental facts of economic war.

So it follows, though it is not perhaps a familiar idea, that wars, or indeed any other activities, are carried on by men with the energy left over after winning their daily bread. We think of war as a first charge on our activities. It is not. It is a marginal charge.

Nor is food and fuel-getting the only prior charge. Those countries which have a substantial margin of energy have it because they are industrialized; and for that very reason they have other prior commitments. Their industrialization—and therefore their margin—depends on the one hand on industrial plant which, over a period, must be maintained; on the other hand, on a high degree of specialization, which also must be maintained. Trams must run, public services must operate, shops must satisfy the elementary needs of urban life, if workmen are to do their 60-hour or 50-hour or even their 40-hour week. There is a limit below which these activities cannot be cut without reducing that very surplus of activity which the cut is intended to increase.

I am trying simply to establish the proposition that wars, like the building of Gothic cathedrals or anything else to which the restless spirit of man aspires, are achieved with the surplus activities of men; and that, therefore, any drain on an enemy's total fund of energy is good economic war. The war potential of a country is least misleadingly expressed in terms of the total man-hours and horse-power-hours which it can produce.

Unfortunately, that over-simplification is qualified by two troublesome factors which I want to mention—productivity and time. The result which a given effort produces varies with circumstances, especially in war time. The effort needed for food-getting, for instance, varies surprisingly between one country and another, even between one industrial country and another. To-day it occupies, perhaps, one-third of the German labour force, but less than one-tenth of our own—a difference so great that if it stood alone it would nearly redress the inequality of our populations! Why is it? Partly because we have access to those parts of the world's surface where the primary food products are more easily produced; whereas Germany is a country where, before the war, more than half even of the wheat came from farms of under fifty acres. That is important, but far more significant is the fact that most of the food which we import costs us to-day in man-hours no more than is needed to bring it. It may be paid for with pre-war savings or bought on credit or provided under Lease-lend. From the point of war economics all these are the same, in that none of them calls for any spending of the fund of energy needed to fight the war now. Our food-getters, as regards these imported products, are sailors. For that matter, according to the grim and short-term reckoning of war, Germany's food-getters in the occupied countries are soldiers.

Consider a sector of the armament industries here and in Germany at the outbreak of war. In Germany factories are already "tooled up" and working, and the finished product is coming off the assembly lines; while in England men are still engaged in making tools or designing tools or building factories to house tools which will one day produce the same product. They have before them months and years of creative, but not, in a war sense, productive work, before British effort in this sector can become as productive as German effort. German war effort in those first months was more productive than ours for just the same reason that our food-

getting effort was more productive than theirs; because it was partly paid for by effort which had already been put in before the war and need not be put in again.

This is the place also to talk about raw materials; because, apart from those basic energy materials to which I have referred, a shortage of raw materials in war usually means, not idle men and idle machines, but men working harder than ever for less and less result. The classic example is the *ersatz* industries—rubber, textiles and oil—in each of which the same amount of effort produces either less in quantity or less in quality (or both) than if the natural product were used. But substitution is far more subtle than that. Copper may be short; there may be too little copper wire for all the electric motors which are needed. Then let the motors be wound with aluminium wire; they can be made to work as well. But—somebody has to re-design the motor to make it possible to use the aluminium wire, somebody has to re-design the unit into which the motor fits, and somebody has to alter the plant that winds the wire, and someone has to make the new aluminium wire. So that particular shortage takes effect, not as a shortage of wire, but on the one hand in causing unproductive effort of skilled men who are wanted elsewhere, and on the other hand, ultimately, in a shortage of something else, in that case aluminium.

So all shortages, with a few exceptions, boil down in the end, on the one hand, to labour more and more wastefully employed, throwing an ever greater and greater drain on the energy-fund, and on the other hand to an ever greater drain on the basic things that cannot be substituted—men, food, fuel, iron, timber, bauxite.

In this review of war potential I have not yet mentioned the armament industries, that is, the three great industries on which modern war depends—the metallurgical, the engineering and the chemical industries. It is very difficult to expand these industries in war time, as Japan is finding to her cost. Therefore the size of those industries with which a country embarks upon a war limits its effort. They may be a limiting factor, but, however great they are, they cannot make good any deficiency in the other limiting factors, as is being abundantly proved in German Europe to-day, where productive capacity in available plant falls short of the materials and energy required to work it.

One of the elements which has been most commonly overlooked in its effect on Germany's war potential is loot. Loot is, in fact, a gift of millions of man-hours, whereby the victor's labour force as a whole becomes capable of producing more result for less effort than it could otherwise have been.

Before I leave this general part of my talk, there is one other idea which I want to give you. How is it that Germany in the five years between 1934 and 1939 was able to develop such strength? The answer is, because she knew how to mobilize her human and material resources. Mobilization of a country's man-power for war means establishing in their right proportions these three teams—the armed forces, the workers in armament factories, and the rest who are to serve the minimum needs of all, getting the food and fuel and providing the minimum of goods and services needed to keep the wheels going round. The size of the armed forces demanded, and the date by which they are demanded sets the problem; and now it remains for those in charge of mobilization to allocate as little as they dare to the basic team, which I will call Team C, and to divide the remainder between the fighting men and those who are to supply them.

How is this distribution to be made? The object is, not that the country shall be able to go on for ever, but that it shall develop its maximum fighting effort

when it is wanted. In other words, mobilizing a country for war is an act of generalship, like deploying men before a battle; and inevitably the course of war causes this economic force to become more and more engaged. Team C has to be "combed out" into Team B, Team B into Team A, to fill the gaps caused by casualties, to make good the increasing demand, until the whole force of the country is completely deployed and engaged and further demands cannot be met. That is the point at which battles are won and lost in the field and wars are won and lost in the terms of which we are speaking. Time enters into the problem of mobilizing a nation's war potential. A man running does not expect to run for ever, but only for long enough to win; the measure of his success is that when he has won—but not before—he shall have run himself out. So the problem of mobilization is to develop the maximum effort when it is wanted.

Let us now come to Germany and watch this war potential developing. Let us begin, not in 1939, but in 1934, when Hitler had been eighteen months in power. Germany is a country with nearly all the potentialities of a great fighting Power; with substantial, though not secure, food resources; with great coal resources, her energy resources deficient only in oil; and oil in substantial, though still not adequate, quantities was in sight in Roumania. On the other hand, she is a country deficient in many important raw materials; deficient in the steel-hardening alloys; possessing very little copper, no tin, no nickel; deficient, too, in many animal and vegetable products; possessing no rubber, very little wool, very little cotton, insufficient fats. She is, of course, a country with very highly developed armament industries. In 1934 she was in the depth of depression, with great unemployment, little discipline, little control; yet, strangely enough, a marvellous weapon of control had already been forged and made ready for the Dictator—that control of foreign exchange which, in a quiet way, not only permits, but compels, any Government to dictate the development of its country's industry, by giving it not merely the possibility but the necessity of deciding what shall be imported.

Just one glimpse of 1935. Germany had announced that she possesses military and naval aircraft. General Goering said how it was done. He assured the world that he had not had these aircraft for a long time hidden away in forests or underground hangars—and I have no doubt he was right—but it had been, he claimed, done in a unique fashion "by expanding technical and industrial capacity to the extreme limit so as to create an Air Force at a blow." He had good reason to be proud of his achievement. It was an indication of what could be done by applying modern methods wholeheartedly to the science of war.

Turn to 1939. German coal production was up by 50 per cent, bread grain by 20 per cent., employment in industry by nearly 50 per cent. Synthetic oil plants were already giving a very substantial return. Oil stocks, food stocks, stocks of every deficient commodity had been laid in. The British-designed Hermann Goering Works were already busily engaged in working Germany's low-grade iron ores. Controls had been developed—of management; of labour; of peasant agriculture, on which the food situation is based. Three million men were under arms. The country was half mobilized and ready for a flying start.

I intend no criticism of those Allied men and firms who sold the commodities from which Germany built up her stocks, thereby giving expression to one of the objects for which the Germans are said to be fighting, namely, free access to raw materials. There was no alternative but to declare economic war before the other war; and that could never be done, because economic war is far too grim.

But now, in September, 1939, we reach the point at which economic war began. The Intelligence Department of the Ministry of Economic Warfare was hard at work identifying enemy interests among the consignors and consignees of the immense volume of cargoes pouring into Germany's front doors—which are not, unfortunately for the blockade, by any means all situated in German territory —into Rotterdam, Antwerp, Oslo, Stockholm, Trieste. A very considerable effort was obviously needed in Intelligence in order to distinguish cargoes going through neutral countries to undisclosed enemy destinations. But soon the flood was reduced to a stream and the stream to a trickle ; and, meanwhile, the further stream of supplies from adjacent countries into Germany, though inaccessible to naval blockade, was being reduced by war trade agreements, such as that concluded with Sweden, and by other means.

But all these things, remember, were of only long-term effect. Germany had been preparing for the blockade for five years ; Dr. Goebbels has told us so. What was of immediate effect was the cutting in two of the coastal sea communications. The severance of the Mediterranean from the North Sea was an aspect of economic warfare which took effect at once. For instance, all the coal which had gone by sea from the Ruhr to Italy had to go by rail through the Alps. Later, when Italy came in and her British supplies ceased, the whole of her twelve million tons a year had to go from Germany by rail. The fact that that was successfully done is a credit to those who administered the German railways. None the less, the loss in productivity of effort involved in dragging coal through the Alps, in comparison with sending it by sea, is substantial. On the other hand, the Pact with Russia re-opened a trade which had been dying ever since Hitler came in. Russian oil started coming in, also Russian manganese ; and across the Trans-Siberian railway came rubber and edible oils. So in that initial stage, economic war, conspicuous as it was, could impose only a partial blockade.

We come to 1940. The military success of the German campaign of 1940 almost swamped our realization at the moment of its enormous economic effect. Germany's capture of oil raised her stocks far above what they had been when the war began. There was practically no weak point in her economy which was not immediately fortified by the tremendous accession of captured stocks. There was an immediate accession of man-power in the form of prisoners. Of longer-term importance, Germany, having achieved domination over all the occupied countries of the West, had access to their man-power, their industrial resources, their raw materials and their food production. Apart from the occupied countries, Switzerland was almost surrounded, Sweden almost surrounded ; Germany had gained access to Spain, access to Portugal, access through France to the French North African colonies—and, for a country at war, access as a dominant customer is in some ways more convenient than access as a conqueror. More than this : Germany had won control of the Atlantic seaboard from North Cape to Biarritz. The British Navy, with the coast of a continent to watch as well as a country to guard, would be hard put to it to maintain the blockade.

Thus opens the second phase of the economic war ; the transfer of the blockade from the seas to the sources. It is an old story but a good one, and I will refer to it briefly.

The Navicert was a facility, a passport through the control, exempting the importer of goods from condemnation in Prize, though not by any means exempting him from the delays of interception and search. It is sometimes said that in 1940 Navicerts were made compulsory. They were not made compulsory. We could

not apply a policy of compulsion to neutrals, especially then; we could not alter the law of Prize, especially then. What we could do was to say that any un-Navicerted cargo would be regarded as contraband and seized, and the question fought out in the Prize court. Since seizure meant at least serious delay for the owner, it became more convenient to take a Navicert.

But there were many enemy agents in neutral countries still anxious to ship to the enemy on his immense incompletely blockaded coast. So other pressures were devised. It was declared that a ship which wished to avoid interference should obtain a Ship Navicert and, to obtain that, it must amongst other things only carry navicerted cargo. Freights were high; neutral ship-owners wanted nothing more than quick turn-rounds. It became more convenient to obtain a Ship Navicert.

There are many parts of the world in which it is difficult to operate a ship for long without having recourse to some British facility. Although we did not deny these facilities to anyone in advance, we made it clear that they could be counted on only by those who we knew were not our enemies. So those who wanted to be sure of these facilities—repairs, tugs, docks, water, victuals, insurance, reinsurance, banking—found it more convenient to comply with the rules; which, of course, included the obtaining of a Ship's Navicert.

In addition, we had the power to declare as an enemy any neutral who was not sufficiently neutral. There were, and are still, large areas of the world where important business firms would find it hard to carry on business if they were to be treated as enemies by all Britons.

Behind all these newly developed pressures was the shadow of the Navy, with its immense prestige, which for long left the world believing that that great Force was even more elastic than it is. And behind that was a fund of goodwill which, in many countries and in many places, often unexpected places, caused this curious informal mobilization of Britain's commercial, financial and shipping power to be accepted and sometimes even welcomed.

Thus, at the moment of our greatest weakness, the blockade was not relaxed but tightened. Ever since it has become more and more effective with less and less naval support.

Meantime, there opened in some of the neutral countries that curious form of battle known as Pre-emption, in which we and our enemies bid against each other like commercial rivals in those few markets to which we both have access.

At the same time the whole coast of Europe became an " economic " battlefield. I have already referred to the importance of the severing of communications between the Mediterranean and the North Sea. Now the whole Continental side of the North Sea, the Channel and the Bay of Biscay were open to operations by Coastal Command and the Navy. This was even more important, in particular because traffic in iron ore and in coal between Germany and Sweden was vital to both, and it was extremely inconvenient if that traffic could not come down the North Sea. That battle has gone on ever since, never more intensively than in this last year.

Finally, the economic war broke out in the occupied countries. Economic war has been fought there continually and increasingly, I am thankful to say, until now.

So the economic battlefield enormously widened. It is curious, looking back, that for some time it was an open question in June, 1940, whether there was anything left for the Ministry of Economic Warfare to do!

One event of 1940 proved of great benefit to our future economic war. We were extremely heavily bombed. Whereas the other Services had been using their weapons

for a considerable time and knew what sort of effort was needed for what sort of objective, bombing was new. There was no way of discovering its effect so good as being at the wrong end. The fact that we were at the wrong end on a large scale first, made available to this country knowledge about the effect of bombing which could not be available to the Germans. The start we thus gained in learning the possibilities and limitations of that most important weapon of war has already proved of great value.

Now let us turn on, through 1941. The Germans had gone down to the Black Sea ; the enemy coast extended all the way from Trieste to Constanza. A new opportunity was opened for a very dangerous traffic between the Danube and Italy—but it was kept closed, against all our expectations, by a small, perfectly timed effort on the part of the Navy. On land, the rail and river traffic up the Danube had passed entirely into German control, and for the first time the oil of Roumania had become a real part of German resources. German administration and development soon eliminated the transport bottleneck between West and South-East Europe. The whole of Europe was within German scope ; the whole of its economic resources were being exploited together.

But, simultaneously with the development of these adverse factors, the Russian war began. German supplies from Russia were cut off ; her trans-Siberian supplies from the Far East were cut off ; her trans-Russian supplies from Persia were cut off. This was perhaps the most bewildering of all the swift changes that at one time or another have transformed the economic front.

In 1941 there occurred something still more significant. At that time German forces reached their optimum mobilization. Team C, the suppliers of the basic necessities, had been squeezed until they could hardly be squeezed any more ; the war industries could hardly be cut any more ; the Army, which had increased by a million and more with practically no increase in the armaments suppliers who were keeping it going, could not grow or maintain itself unless new sources of men could be developed. This could be achieved only by diluting the labour force with more foreign workers. Foreign labourers, civilian and prisoners of war, were already up to three million ; they have since risen to more than five million. Thenceforward, failing victory in Russia and a partial demobilization, the future was bound to be a story of falling productivity, increasing dilution and increasing lack of balance between the " three teams."

In Spring 1942 came crisis. Plans had gone wrong for the first time. There were signs of Germany improvising hasty and unsatisfactory expedients. There were shortages at the front. The disastrous Winter had been as hard on wheat and on locomotives as on men ; transport was strained to the utmost ; food prospects were bad. There was every evidence of a short-time policy, put on of necessity to whip up the effort for a campaign in 1942 which was not planned, nor ever intended to be necessary. And, at the same time, Japan came in and there was opened on the other side of the world a new enemy area full of materials which Germany wants, a place full of men and materials without factories, standing over against German Europe, which was full of factories, without materials and ever shorter of men. These events again re-made the economic map and ushered in the latest phase of the economic war.

The blockade was a solved problem in the sense of restricting supplies from neutrals overseas. It was good in 1941. With the addition of American help it could be made still better. But the problem was no longer to cut off supplies from

neutrals, but to keep two enemy worlds apart. This was a problem for naval and air power—a fighting problem ; we were back where we were at the beginning of the War, indeed, farther back. That was the first fundamental change of this latest stage of economic war.

There was another change, a curious one, less conspicuous. The United Nations, by their increasing demands for supplies and for shipping, were beginning to create world shortages in almost everything. The problem of the neutrals had formerly been to get permission to import ; their problem was now increasingly to become how to find the stuff and to find the ships to carry it. Thus relationships between belligerents and neutrals must tend to change. Instead of simply seeking to be left alone, neutrals must have an increasing interest in securing a share in belligerent-controlled supplies, whilst belligerents must come to consider ever more carefully what they are prepared to supply to a neutral country and what to seek in exchange. Meantime, the shadow of the enemy's armed forces on the adjacent neutrals' boundaries began to lift and has lifted ever since. Thus open new possibilities of economic war in these neutral countries at a time when their resources have become relatively more important to our enemies.

In this phase, too, the bombing of industrial objectives has greatly increased in importance and effect. The lessons of 1940, wedded to the resources of 1942, have produced a substantial economic effect and promise more in 1943.

Finally, internal resistance comes more and more to mean Germany's fight for men ; and it concentrates more and more on France and on Russia. The occupied countries have been tapped, their resources have been put to work, and then they, too, have begun to fall back, because of a shortage of men and a shortage of materials. There remains only one substantial reservoir of skilled labour—France ; and during these last months we have been watching the fight of French labour to resist compulsion. We have been seeing that crisis become more and more acute. Now it has been intensified by these latest events, which we hope will mean that the cordon is at last completed. That is where we stand now.

A conspicuous feature of these last months has been that Germany seems to have regained control over her deteriorating economic situation. The 1942 campaign was fought ; it was fought on a restricted scale. Transport still operates ; it operates on a restricted scale ; it is cut to fit oil supplies, locomotives, rolling stock. Germany's economic planning is still equal to the increasing strains which are being thrown upon it, partly by our action in economic war and partly by the development of the war itself. And between those two it is impossible to distinguish.

Thus far, then, the drain on the energy fund remains a drain, an attrition. It may conceivably be reversed. There are vast stores of labour in Russia, vast stores of raw materials in the Far East. It is too early to assure ourselves that this present dwindling tendency is permanent. Yet I am sure that we have the power to make it permanent ; and I am sure that, if we do make it permanent, there will come a time sooner or later—a time which even the Germans would find it most difficult to assess and which I am not prophesying—when the effects of economic war will begin to multiply themselves, until they not only affect strategy and operations but begin to confuse planning itself. The task of continually adjusting increasing needs to diminishing supplies will get too difficult ; and these difficulties will cast their shadow upon every plan. It is at that point that results begin to multiply themselves, failure accumulates, battles are lost, wars are lost ; and in that ultimate breakdown the effects of economic war will be completely merged

with the phenomena of defeat; because, as I have said, economic war is only a part of total war.

DISCUSSION

FIRST OFFICER THURSTON, W.R.N.S.: May I ask what effect the liberation of West Africa would have?

THE LECTURER: I think West Africa by itself would not have any effect on the blockade, because the occupation of North Africa will, I take it, already have cut off from France the supply of ground nuts which were the only important import from French West Africa into France, and which constituted quite a large proportion of her ration of edible fats.

MR. L. M. EARLE: What was the small naval effort to which the Lecturer referred?

THE LECTURER: When Crete fell there was an obvious risk that sea communications would be opened from Constanza to Trieste. That would have been serious; but there was just enough sinking of ships to keep that traffic to almost negligible proportions. That important result was, I believe, achieved by quite a small naval effort, perfectly adjusted to its task.

MR. WOOLLCOMBE-BOYCE: So far as we know, have we completely cut communications between Japan and Germany, or are they getting any valuable supplies through by submarine?

THE LECTURER: No, we have not completely cut communications. There are wide waters between these two enemy countries, and, if the enemy try hard enough, some ships will certainly get through and will certainly carry valuable cargoes, because each side possesses what the other urgently needs. I hope that the quantity that gets through will not be enough significantly to affect the position; but it remains a battlefield.

THE CHAIRMAN

The fact that there are not many questions I think shows that Colonel Vickers has, as I anticipated, given you all a very great deal to think about.

Of the many facts that he gave, the one which will probably stay longest in your minds is the striking figure that 85 per cent. of raw materials go in the production of food and fuel, and that all wars are really fought on the remaining 15 per cent. That shows, at once, the enormous importance of the blockade. Whereas the soldier or sailor is striking at the 15 per cent., the blockade is striking at the 85 per cent. But in so far as the Germans know full well that the blockade was one of the chief causes of their downfall in the last war, Hitler took what he thought was very good care to see that Germany did not fail again in that respect. Immense quantities of the necessities of war were accumulated deliberately as part of his plan before he plunged the world into war. The moment a man has declared war, however, he brings to his council table not only all the plans and the schemes that he has made, but also all the mistakes that he has made, and already the Germans are beginning to find out that in some directions their provisions were not adequate.

You may ask what does the Ministry of Economic Warfare do besides collecting the facts and analysing the problems described by Colonel Vickers this afternoon. The answer is that we pass them on to the proper quarters, and the soldier, the sailor and the airman are constantly coming to the Ministry for information and asking us to make further examination into particular aspects of particular questions. Economic warfare is an integral part of total warfare, and all wars have to be fought not only on sea and on land and in the air, but also in the mines and the factories and the farms as well. It only remains for us to record a hearty vote of thanks to Colonel Vickers for his brilliant lecture this afternoon.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE BRITISH WAR EFFORT

THE ROLE OF AIR POWER

By Air Chief Marshal Sir Robert Brooke-Popham, G.C.V.O., K.C.B., C.M.G., D.S.O., A.F.C.

IN the last issue of the Journal there appeared an interesting article entitled "The British War Effort," by Admiral Sir R. P. Ernle-Erle-Drax. With many of his statements there will be no disagreement; but the first part of the paper gives the general impression that behind the views expressed lies the influence of the one-Service mind and that this leads the writer into inconsistencies and blinds him to the full potentialities of aircraft and in particular their flexibility and ubiquity. He seems unwilling to acknowledge the existence of air power, at any rate he never mentions the word, and he tends to regard the Air Force merely as the handmaid to the Army and the Navy. For instance, we are told, "in order to win the war we must win battles on land and sea." True, but most people are of the opinion that the Battle of Britain, fought in the air in the autumn of 1940, made no small contribution to the ultimate defeat of Hitler. We shall not win this war within reasonable time unless every form of activity is used, not only to the full but in its most effective manner, and the whole co-ordinated in one combined plan. This paper is written not merely to criticize Admiral Drax's article but because the present writer is convinced that some of the views expressed in it would, if accepted, militate against the most effective use of air power and thus lead to unnecessary lengthening of the War.

The Air Force has been unfortunate in that it has imported new meanings into old terms and those new meanings have not yet been widely realized. This especially applies to the word "independent" which still seems to lead people to believe, or at any rate to argue, that the Air Force intends to operate on its own without any reference to what the Army or Navy are doing or even to what the Government policy is. That is not the case: the operations of the Bomber Command, for instance, are governed by the policy of the War Cabinet; they are not a kind of special preserve of the Air Ministry bearing no relation to other war activities. Nearly half the total effort of the Bomber Command over the past twelve months has been devoted to naval targets, such as enemy ports or works producing U-boat engines. Only a small fraction of its total effort has been devoted to what we may term purely air-power objectives, such as aircraft factories. In general the targets selected are closely related to our own operations and to those of our Allies. For instance, the attack on the Schneider Works at Le Creusot and on the Renault Works in Paris certainly reduced the number of German tanks on the Russian front by scores and the number of lorries by many hundreds, while the attacks on Lubeck and Rostock destroyed thousands of tons of stores intended for the German armies on the Eastern Front.

Many cities in Britain bear witness to the destruction that may be wrought by air attack and, though some may not go so far as to agree with the statement that "ships to-day move by the leave or under the protection of the force that controls the skies above them,"[1] no one who has read of the events in the South-

[1] *Times* Leader, 14th January, 1943.

West Pacific can any longer doubt that aircraft attacks are sufficiently effective fully to justify the use of the term "air power." However distasteful and troublesome it may be, a third power has arrived on the scene and must be treated on the same plane as sea power and land power. We must think of a trinity of power—sea, land and air—completely co-ordinated and wielded in the manner laid down by the War Cabinet, or, if preferred, of three great gear-wheels closely intermeshed and revolving together in harmony. Acknowledgment of the existence of air power in no way militates against the concentration of air effort in assisting the Army or the Navy, should the War Cabinet decide that the situation demands it. The German Air Force is a unified service under its own commander but that did not prevent the bulk of the German air effort being devoted in 1940 to the direct assistance of the Army, because the German High Command had decided that the way to win the campaign in France was primarily through land power, as represented by their greatly superior mechanized forces. What some people refuse to recognize is that when the maximum degree of assistance either to the Army or to the Navy is required, it can be obtained far more easily by centralized control than by a permanent allotment of the same number of aircraft to specific duties.

Any attempt to divide up air power between sea power and land power indicates failure to realize the ubiquity of the air; for the air is all one and we cannot isolate air warfare into rigid compartments relating solely to the sea, or to the land, and the control of sea communications must not be regarded as a problem of sea power alone. The control of sea communications is exercised by surface ships and aircraft together, and we must think of sea power and air power as working in combination, otherwise we shall limit the extent to which all the available resources of our air power can when required be used to support our sea power. Take the situation in England to-day. Owing to the favourable air situation around the coasts of Great Britain coastal shipping is enabled to move and use ports with comparatively little interference. But this situation is not brought about solely by aircraft operating over the convoys, it is brought about partly by interceptor and night-fighter aircraft operating from land aerodromes over Britain, and still more by our offensive air operations, both air fighting and air bombardment, against the enemy's air bases, communications and military and industrial establishments on the Continent.

Those who claim that all air operations are but an extension of sea power or land power would make the classification depend upon the question whether the target attacked is on the sea or on the land. But flying boats have, in one flight, bombed military barracks, road convoys and ships. Spitfires, within an hour, have attacked locomotives and sea-going tugs and other small craft. The air attacks on Genoa were in support of land operations, but were directed mainly against shipping conveying supplies to Rommel's Army in North Africa. It would be difficult to place any of these operations under the heading of land power or of sea power. Is a submarine shelling a railway exercising sea power or land power? In which category should coastal guns firing at warships be placed? Should aircraft taking off from a carrier and attacking an aerodrome 50 miles inland be classified as a form of sea power or land power?

If we start arguments as to whether any particular form of air activity is exercising sea or land power, we shall only drown our ideas in a hazy medium of words, and reach no conclusion. If we regard it as the exercise of air power integrated with sea power and land power so that the three always operate in

conjunction, then we get a simple and clear picture in accordance with the facts. The tendency to attempt a rigid division between air operations over the sea and air operations over the land is possibly due to the obvious distinction that has always existed between sea and land itself. This gives rise to a feeling that the same difference ought to extend to the air, which in fact knows no such distinction but flows equally over both. So long as a proper attitude of mind is adopted, air power, far from introducing a discordant note, can bind and integrate sea power and land power, for it is all pervading and all embracing.

This is not a mere academic discussion because, if carried on to its logical conclusion, the division of air power would tend to over-specialization of aircraft and their crews and to a more rigid allotment of aircraft to particular duties, with consequent loss of flexibility. That would be a mistake even if the numbers of aircraft were unlimited; but they very definitely are not. We have got to make the fullest and most effective use of every aircraft we possess. Technical development is tending to eliminate the differences in aircraft and their equipment. We must take full advantage of this and so make aircraft even more interchangeable than they are to-day. There is a limit to the total resources available for the manufacture of war material and, once the decision as to the allotment between sea, land and air has been made, any subsequent change necessitated by some unforeseen development will not become effective within a period of, perhaps, a year or more.

Now warships cannot be used on land, neither can tanks be used at sea, but aircraft can reinforce either, provided they are not over-specialized and that there is unity of direction to ensure the maximum concentration of air effort wherever most required in a minimum of time. Thus they afford a rapid means of re-adjusting a lack of balance. Re-allotment of aircraft is constantly taking place: squadrons that have been bombing Germany have been allocated to Coastal Command and within a short time have been playing their part in the protection of sea communications; Spitfires have been taken by carrier to Malta and been in action sixteen days after the decision to send them was reached—an instance of naval co-operation with the R.A.F.; a Beaufighter squadron moved from the Middle East to India and during the night of the sixth day after it started brought down Japanese aircraft; Bomber squadrons have been flown from England to Africa and soon after bombing the Ruhr have been operating from Egypt over the Mediterranean or over Libya. The Germans adopt the same principle: after the defeat of the French armies, squadrons of Heinkel 111's were used within a few days for such diverse purposes as bombing in direct support of the German Army, mine laying, and attack of ports on the French Coast.

The flexibility of the air is made evident in many other ways besides reinforcement, for instance the facility for switching from one target to another. Admittedly this may introduce the risk of failure to pursue a single object with energy and perseverence to the end, but that merely emphasizes the necessity for a staff capable by training and experience to appreciate the difficulties as well as the potentialities of directing air operations. An instance of this form of flexibility occurred in the middle of January of this year, when a large force of bombers, which had been attacking the Ruhr, were quickly switched to bomb U-boat bases on the French West Coast; this, again, was immediately followed by two successive attacks on Berlin. Another instance was in June, 1942, when the British Army was retiring towards El Alamein: a convoy was on its way to Malta and a large proportion of

the German Ju. 88's were diverted from targets on land to attack it; and the Royal Air Force devoted its long distance fighter aircraft to protection of this convoy. Neither of these switches would have been so easy had those squadrons been allocated definitely to the Army instead of being under air control. This feature of flexibility is also made evident in the power of aircraft to attack different targets all with the same object.

Much has been written on co-operation, but in many cases ideas have not yet gone far enough. Co-operation is not merely the drawing up of a plan by one Service which then sees how the other two can assist; practically every operation must be regarded from its inception as a combined one and worked out on that basis. The Navy and the Army must be no less prepared to co-operate with the Air Force in winning air battles than the Air Force to co-operate in winning sea or land battles. If co-operation is regarded solely from the one-sided point of view, there will be an inevitable tendency to use air power as an auxiliary to enable older forms of warfare to continue instead of using it in the most effective way to bring about the result required. Whilst small escort ships may always be necessary it would, for instance, be obviously waste of effort to protect a convoy with capital ships and to have air protection for the latter when aircraft could equally well protect the convoy directly.

A good instance of the mutual interaction between all three Services is the recent campaign in Egypt and Libya. From the narrow point of view, the Allied air forces might be considered merely as having helped the Army to advance; yet each advance of the Army meant the occupation and defence of fresh landing grounds whereby the air forces were enabled to fling their power farther afield, thereby again assisting the Army forward movement. But the influence of air power was felt not only over the land but also over the sea: it enabled the Navy to move westward in comparative safety, thus allowing ships to bring up supplies for the use of the Army and later on to reinforce Malta. Here is a classic instance of the true inter-relation of the three Services.

According to Admiral Drax "there is little value in winning battles in the air if we cannot also win them on land and sea." But if there is one lesson more than another that this war has taught us it is that we cannot win battles on land and sea without first winning the battle in the air over both land and sea. In fact we have been severely punished for refusing, before the War, to believe this simple fact and for not having sufficient air power to give effect to it. So far as this war has gone at present, it is difficult to draw deductions about battles at sea, as they have on some occasions been fought and won whilst the opposing surface ships have never been within a hundred miles of each other. If we take the intended invasion of Britain in the autumn of 1940, the attacks by the German Air Force were almost certainly directed to bringing about a favourable air situation over the coast of France, over the Channel and over the South of England, so that the Army could have been ferried across; the defeat of these attacks stopped the invasion. Again, in the battle of El Alamein a necessary preliminary was the complete air superiority obtained in that whole area by the Allied air forces. A similar instance is Allenby's victory of September, 1918, in Palestine.

Space does not permit of a discussion on the bombing of Germany. But one point must be stressed, namely that it is by using aircraft offensively that the fullest value of their special characteristics can be obtained. Moreover, our bombing

attacks on Germany have forced the enemy to lock up more than a million Germans for defence; a large proportion of these might otherwise have been free to take part, and possibly have turned the scale, in the Russian campaign.

To summarize:—

(*a*) Air power is now a definite factor in war and must be regarded as on the same plane as sea power and land power.

(*b*) Our resources are not unlimited; we must use every one not only to its fullest extent but in the most effective manner, and all integrated by the War Cabinet.

(*c*) To obtain full value from aircraft we must make the best use of their offensive power, flexibility and ubiquity. To ensure this, as well as rapid concentration of air power for any particular object, centralized control is necessary.

(*d*) True progress and economy of force will only be achieved by training our minds to develop a three-Service rather than a one-Service outlook.

(See also "Correspondence," p. 59—*Editor*.)

SEA, LAND AND AIR POWER

By J. M. Spaight

THERE has been much arguing of late, some of it in the nature of special pleading, about the respective spheres and potentialities of sea and air power. The incidental references to the position of land power have been less controversial. The pretensions of the champions of sea power on the one side and of air power on the other have been immoderate at times. There has been overstatement of the case at both ends of the table, and the arguments advanced by the more fervent adherents of each school of thought have not always been very well considered.

In America, especially, the claims staked out for air power have been almost sensational in their magnitude. That was natural, perhaps, in the land of skyscrapers and endless assembly lines. The replies of the believers in sea power have not wanted for pungency and directness. In this country the same duel has been waged, but the exchanges have not been so vigorous. The core of the dispute has been the question whether sea power embraces certain domains which are denied to it by the adherents of the blue-sky school.

It is not surprising that there should be some perplexity. We knew where we were in the old days. There was war on land and there was war on sea. Their respective theatres were well differentiated. Now, a third dimension has come crashing into the scene and the effect has been rather chaotic. It has been as revolutionary as the impact of the space-time continuum upon the Euclidean conception of the universe. The domain of sea power, in particular, has seemed to be challenged. Alarmed, its champions have shown themselves disposed to regard attack as the best defence. They have not shirked the conflict. They have gone out to enlarge the *Lebensraum* of sea power.

Aircraft, they say, when used at sea are nothing more than instruments of sea power. The air arm is only a branch, like the submarine, of the naval service. Sea power is the ability to use the pathways of the ocean for the purpose of exerting constraint against the enemy. The new arm merely enables it the better to fulfil that purpose. There is really no such thing as air power where salt water flows below battleships' keels.

It is certainly true that the air arm must be regarded in certain circumstances as an integral part of a fleet or naval force. The fact that an instrument of war is air-borne does not exclude its being classed as an instrument of sea power. A formula which defines sea power as the power exercised by craft which float and air power as that exercised by craft which fly does not fit all the varying situations. Ship-borne bombers and torpedo-carrying aircraft cannot be differentiated, in principle, from warships' guns and torpedo-tubes, the range of which they simply extend. That was made clear in the battle of Cape Matapan (28th March, 1941) and the pursuit and sinking of the *Bismarck* (24th—27th May, 1941). In each instance the enemy was caught and brought to naval battle and destruction because our warships had at their disposal the means of striking blows far beyond the range of their traditional weapons of combat. More and more will such means tend to be utilized by sea power, but it will be sea power still.

Two sea battles fought in the Pacific in the early summer of 1942 pointed the way clearly to the new order in maritime war. They were the battles of the Coral Sea (4th—8th May) and of Midway Island (3rd—6th June). In neither did the surface warships of the American and Japanese fleets come within sight of one another. In both (except for one American warship sunk by a submarine) the destruction inflicted was entirely the work of aircraft. Here, clearly, sea power was using the air arm as an instrument of attack and destruction. Nevertheless, it became clear within a few months' time that the older order of naval battle is not a thing of the past.

The two battles referred to above were severe reverses for the Japanese navy. It suffered two others in November. On 13th—15th November, and again on the night of 30th November, disastrous blows were struck at Japan's naval power in the Pacific, but, this time, they were struck in the traditional way. The air arm hardly came into the picture. It was the guns of the warships engaged which were responsible for the damage done in these November engagements at Guadalcanar. Here could be seen in action the sea power which our fathers knew.

Also the land power that acts alone has still to be reckoned with, notwithstanding that, co-existing with it, there is a variant in which the old stock has had air power grafted upon it. As sea power is tending to become sea-air power, so land power is tending to become land-air power; but there still remain circumstances in which armies cannot use aircraft as cavalry scouts or levitated artillery, and then the old order of war re-emerges on land just as it does at sea.

Yet over and above these categories of power there is to be discerned another which is wholly new and of which the identity and individuality are unmistakable. It is air power: just that and nothing more. To ignore its separate existence, to claim it as a parasitic growth incapable of independent life, would be to fall into as grave an error as, at this stage, to credit it with either magic properties or a developed magnitude which only the future will see. Already its characteristic quality is evident enough. It is at home over land or sea. Its goings are not halted by tide-water frontiers. It can overleap boundaries. Unlike a fleet, which strikes at the enemy on blue water, unlike an army, which strikes at him on land, it can aim its blows at him indifferently on land or sea—or in the air. It can do so, too, when its operations are the only current operations of war.

The independent action of air power is most clearly apparent when it takes the shape of a strategic offensive against an enemy's industrial centres and communications. It is to be seen also in operations against marine targets. Air power is not the understudy of sea or land power but a leading actor in the drama of war when it manifests itself in ways of which many examples could be quoted. It was not the ally or helper but the adversary of sea power when it struck down the *Prince of Wales* and the *Repulse*, and what land-based aircraft accomplished then was, in essence, nothing new. Our own land-based Beauforts had already shown the way, and the Flying Fortresses of the United States Army Air Force have since achieved results as notable. It would be a misuse of terms to describe a power capable of action of this kind as the handmaid of either sea or land power.

The truth is that the extension of warfare into the third element has created a situation more complicated than the partisans of the opposing schools suppose. The effect, one school would say, has been :—

(*a*) To reinforce sea power and land power each with a new arm whose function is subsidiary or auxiliary.

No, the opposing school would say, it has been :—

(*b*) To add a new and independent power—that of the air—to the other two : a power that is their co-equal now and will some day be their master.

The true view, it is submitted, is :—

(*c*) That the effect has been to raise the number of " powers " to *five* : sea–power, sea–air power, land power, land–air power and air power.

To these five categories some may think that a sixth should be added : sea–land–air power. The combined operations in which the three arms are in action are, however, only the amphibian operations of former times re-staged in conditions in which the land and sea forces engaged have their air components. It is sufficient to recognize the existence of the five kinds of power enumerated at (*c*) above.

Which of the five should be first, whether (to take the concrete question) the last of the five should have priority for supply over the other four, the writer does not pretend in this article to determine. He leaves that elusive question to abler pens to pursue. All he is seeking to establish is that there *are* the five kinds of power. If that view is accepted, some, at least, of the salients in the controversy will have been smoothed out.

To prevent any possible misunderstanding it should perhaps be added that the references here made to sea–air power and land–air power imply no criticism of the existing organization of the air services in this country or any suggestion that the system under which the shore-based units which work with the Navy and all the units which work with the Army belong to the Royal Air Force should be changed. How very close and effective co-operation can be under the present system has been amply demonstrated at home by Coastal Command and abroad by Middle East Command of the Royal Air Force.

SOME ASPECTS OF REVOLUTIONARY WARFARE

By David M. Cole

THE present war is much more than a struggle for military supremacy between rival war machines; behind the massed armies stand diametrically opposed ideologies, social and intellectual standards, each of which plays its particular part in the war-potential of its nation. The weakness of the Allied armies in the past has been the lack of clear-cut aims, and the apparent absence of political and social objectives. The defeat of France finally proved the fallacy of a negative policy of national defence when opposed by the bombastic proselytizing of the Reichswehr with its gaudy banner of the New Order in Europe. This deficiency is being steadily overcome as it becomes increasingly evident that political weapons can probe the weaknesses of the New Order no less surely than military offensives.

As a result of its early vicissitudes the Russian Army was reared in the use of political and ideological weapons, a training and background which remain as prominent to-day as when they first achieved distinction in the Civil War of 1918–1921. This specialized aspect of the Red Army assumes greater importance because, thanks to Dr. Goebbels and the Propaganda Ministry of the Reich, the Russian Army has been represented to the world as the advance guard of anti-Fascism. In pursuing this objective, Goebbels forgot the fundamental lessons of Germany's own successes. Hitler elevated the Third Reich to European hegemony by skilful manipulation of all minority movements opposed to the existing order, irrespective of whether or not they were Fascist. The Soviet Union in like case has become identified in the eyes of the European peoples with the antithesis of Fascism, and is now sympathetically regarded by all manner of non-Fascists who are by no means Communists.

The Red Army, reared on the theoretical premises of Clausewitz, is the military instrument of the Soviet Government, the executive arm and shield of its anti-Fascist policy, and as such it must exert an increasing influence in theatres of war not immediately concerned with the U.S.S.R.

The full significance of this state of affairs becomes apparent when it is realized that the European war which eventually will undermine the Third Reich will approximate more closely to the campaigns of Wellington in the Peninsula or Cunningham in Abyssinia than the regularized, static warfare of 1914–1918. To nations preparing to engage in such a conflict the experiences of the Red Army provide valuable lessons, for the use of revolutionary minorities for military purposes has been studied in Russia with the same earnest application as in Germany.

Among the military expressions of political struggle perhaps the most universal is " Guerrilla Warfare," a phenomenon which will assuredly soon be widespread in Europe. Russian experience reveals two major tendencies among guerrilla troops, dependent upon the social background and class origin of the participants. First among the defenders of the Lenin Government of 1917 were the Red Guards or Workmen's Militia. This force was formed by the amalgamation of many small groups whose original function had been purely local, the defence of their individual factories. The fighting value of such troops was very uneven and depended largely upon their political homogeneity and the quality of individual leaders. Their greatest weakness, and therein lies their significance to modern military thought, was their failure to find trained commanders. Early efforts at " pure democracy " in the election of officers and N.C.Os. were unsuccessful, save for a few exceptional cases, because the Red Guardsmen showed a natural tendency to set less store by

military capacity in their commanders than by universal popularity. As a result of this the Red Guard proved unequal to the task of dealing with trained regular troops led by military experts. Looking forward into the campaigns of 1943, it may confidently be suggested that each and every outbreak of partisan warfare will urgently need the services of previously-trained experts, equipped for the rapid conversion of individual heroism into an organized tactical plan.

Simultaneously with the formation of the Red Guards in the industrial centres of Russia, there arose bands of armed peasants united to defend the land redistribution made in 1917. Numerous factors influenced the character of the partisan bands, some of which remain effective in considering European possibilities. Most important of these were the size of the country and the varying density of population ; the breakdown of the transport system ; lack of contact with a central authority ; the diversity of peoples, culture and language ; and, finally, the diverse nature of the country itself.

Among the peasant guerrillas Soviet military analysts have traced two distinct types—the Ukrainian bands, with their background of local loyalties, and the Siberian partisans whose political development was considerably higher, probably as a result of the teachings of the stream of exiles sent to the barren North by a succession of Imperial rulers.

Points worthy of note as having possible implications for the future are many and varied. In revolutionary warfare, the industrial centres are invariably first to provide fighters ; the villages are slower because they have greater difficulties to overcome. Recognizing this in advance, the military leadership which prepares to direct such activities might profitably study means whereby this debilitating time-lag may be removed. Left to their own devices, peasant guerrillas tend to provision themselves upon their own villages, a fact leading to local patriotism and small objectives which must be eradicated before such troops can be relied upon as elements in a wide strategic plan. To correct this tendency, military and political experts would be needed in order to employ the isolated guerrilla bands to establish control over as wide an area as possible, drawing food, revenue and man-power to the defence of the entire area rather than its constituent villages.

A speech delivered by Lenin in Moscow on 4th July, 1919, gives plain warning that the guerrilla problem requires most careful treatment. Speaking about the Ukrainian partisans, the Russian Premier said : " The peasants simply took up arms, chose a captain and instituted a government of their own there and then. They paid no attention to any central power and each Ukrainian *ataman* thought he could solve all his country's problems without troubling about events in the capital. We must dread these guerrilla tendencies, the arbitrary behaviour of the individual bands and their disobedience to authority ; we must dread them like fire or they will lead to our destruction."

Perhaps the most important lesson of all in relation to revolutionary warfare is the vital need to ensure that guerrillas are a purely temporary measure to be dispensed with at the earliest possible moment. Every available weapon—military and propagandist—should be directed towards the consolidation of the small bands into large formations and their incorporation into regular units conforming to normal technical standards. The tremendous work demanded by such a task provoked much discussion among the students of the Russian events of the early 1920's and their writings are equally applicable to our own preparations for coming eventualities. K. Yeremeyev, examining the situation, pointed out its dangers : " The guerrilla

bands contained pugnacious, enthusiastic men who could not endure all the preliminary operations and wanted to go into action at once. We certainly had a lot of trouble with them at the front. They often upset all our plans and arrangements; they never conformed to any general scheme, but just trusted to their own inspiration." If guerrilla warfare ever assumes large proportions in Europe, its military value will depend upon how soon its members can be united under a single directive and employed, along with invading regular formations, towards a previously conceived strategic objective.

As such plans show signs of success it will no longer be necessary for the European people to confine their immediate effort to local action against the nearest German authority; the invading forces will then receive a steady flow of man-power volunteering to fight under regular control. This is, of course, the most desirable eventuality of all, to build armies from the subject peoples of an enemy, but woe betide the hasty commander who seeks to apply conscription laws to such a situation without first demonstrating his trustworthiness in action.

In this connection also, across a stormy twenty-five years, Lenin gives timely warning in his comments on the defeats of General Denikin: "A general mobilization will finish Denikin off, just as it finished off Kolchak. So long as his army consisted only of volunteers it was strong and reliable. He was certainly in a position to raise forces more quickly when he instituted compulsory military levies, but the greater the size of his army, the less homogeneous it was and the weaker it became. The peasants conscripted into Denikin's army served him in the same way as the Siberian peasants served Kolchak, that is to say they disorganized his army completely."

It is true that the Russian revolutionary war achieved final victory, but previous examples of similar struggles demonstrate how often insurrectionary movements have ended in disaster because they failed to solve the problems of co-ordination and expert leadership. The success of the Lenin Government was largely due to its appreciation of the fact that military specialists, irrespective of their political origin, must be given executive power in the creation of military forces. Previous movements never understood this essential fact and were overcome by numerically weaker forces directed by trained and determined leaders. The European guerrillas of the future will be faced with all the ruthlessness of National Socialist Germany and may profitably reflect upon the lessons of earlier history.

Cromwell succeeded in defeating Charles I because he contrived to become a military specialist as well as an ideologist. The French Revolution drew its finest field commanders from men with a background of orthodox training and paid in blood and defeats for its experiments with untrained "political" Generals. Most significant of all was the Paris Commune of 1871, the insurrection of a metropolitan city against a foreign invader and its own reactionary Government, a situation which may easily be duplicated within a few weeks of an Allied landing in Europe. How closely this experience applies to the present may be seen in the following statement of Peter Lavrov, writing in the year 1880:—

"Neither the socialists nor the democratic extremists, both of whom were drawn from the ranks of the peaceful working classes and clerks, could provide military specialists. The usual occupation and general trend of thought of these leaders of a people's uprising made them strangers to military technique and unfitted them for the task of controlling the actions of military leaders. The Government was incompetent to direct in affairs of war; consequently all military discipline

was undermined, while the military leaders were deprived of the possibility of taking quick and energetic action at the very moment when the fate of the Commune depended on the speed and energy of their actions."

So terrible were the consequences of this military inefficiency that Kautsky despaired of the value of revolutionary warfare altogether, expressing the belief that "war is not the proletariat's strong point." In this he failed to recognize that defeat was not due to the inherent incapacity of the people, but to the tragic absence of skilled leadership. "Most battalions," wrote Lissagaray, "had no leaders. Generals who took the responsibility of leading 40,000 men had never taken even a single battalion into action. They neglected the most elementary arrangements; they failed to provide artillery, powder wagons and ambulances. One day they forgot to issue any orders and left their men for hours without food."

The Allied Powers, having every facility for the training of politico-military experts, will earn the censure of history if they permit a similar catastrophe to be repeated. The training of such men will necessarily be subject to experiment and possible error, but Lenin himself undertook the study of a like problem with little more to go on than Clausewitz' book *On War* and the propagandist writings of Bebel, Engels and Jaurès. A prominent and profitable feature in the researches of those appointed to lead the European liberation movement would be the chequered history of the Russian political commissars, whose basic function was the creation of a working liaison between non-political military technicians and the political figures thrown up by the first flood of insurrection.

Initial difficulties and the natural suspicions felt by European insurrectionary bodies towards foreign military leaders sent to help them will be considerable, but the Allies have many advantages not present in former times. Technical progress has been so rapid that there is virtually no task which cannot be surmounted by a modern military Power. Small arms, aircraft, selected companies of shock troops, all of which can play an important part in partisan warfare, can reach the most inaccessible areas in a matter of hours, while present developments in radio make possible the remote control of local movements from a central headquarters many miles from the scene of operations. Guerrilla commanders in Europe will no longer feel themselves isolated fighters against their Nazi overlords and will derive strength and confidence from the knowledge that they have powerful friends able and ready to help them.

One of the most significant products of the German conquest of Europe is the army of General Mihailovich in Yugoslavia. This force consists of peasants and industrial workers, officered by the leaders of the Nationalist Chetniki, together with a high proportion of Left-wing intellectuals, university professors and professional revolutionaries. The importance of such a force does not lie in its tactical successes, but in the fact that in Yugoslavia a dress rehearsal of the future European campaign is being staged. Frequent reports indicate that friction occasionally arises between Nationalist and Communist elements, but, in spite of these disagreements, General Mihailovich can claim to have proved beyond question that, from such materials, an able leadership can produce an efficient fighting instrument and direct its mixed enthusiasms towards a common goal.

If there remain any who would doubt the value to be derived from study of revolutionary warfare, let them take note of how Hitler and Mussolini fret and fume at the failure of their Generals to liquidate what they are pleased to label "an insignificant local revolt."

MINESWEEPING

By Captain M. H. Evelegh, R.N.

On Wednesday, 2nd December, 1942.

Admiral Sir Lionel G. Preston, K.C.B., in the Chair.

The Chairman, in introducing the Lecturer, said that he was Deputy Director of Minesweeping at the Admiralty.

LECTURE

Note.—All figures mentioned are approximate only.

BEFORE discussing minesweeping in detail, I propose to describe briefly the types of German mines and German minelayers against which we have to compete.

Enemy Mines

In general, there are two types of mines—(*a*) Moored, and (*b*) Ground.

The moored mine, as its description implies, is connected by a mooring rope to its sinker on the sea bed. The length of the mooring rope (which can be regulated prior to laying) determines the depth below the surface at which the mine takes up its position. Moored mines can be laid in water up to about 200 fathoms and adjusted as a deep field against submerged submarines, or they can be laid at a depth of, say, 30 feet below the surface against large ships, or at an even lesser depth against smaller surface craft. Governing factors are strength of currents and the tidal range.

Ground mines have no mooring rope or sinker, but merely rest on the sea bed. It is thus easily understood that their effectiveness is very much dependent upon the depth of water; normally they would be ineffective in water over 40 fathoms, although the depth at which ships are immune is much reduced by degaussing.

In the last war we had moored mines only to cope with, and our minesweeping forces only required to be equipped against that type. In the present war we have both moored and ground mines with which to compete. This necessitates different equipments and different tactics, although the principles remain the same. In addition, during the present war the advent of aircraft minelaying has increased the mineable waters to a very large extent: it is now a comparatively easy task for aircraft to lay mines in estuaries, rivers, and even docks and basins, and also in other waters which normally would be protected from surface craft by navigational difficulties. This calls for a greater number of minesweeping craft, besides demanding more skilled labour to provide different types of equipment and larger M/S base staffs.

Enemy Minelayers

Mines can be laid either by (*a*) surface craft, (*b*) submarines, or (*c*) from the air.

Surface minelayers may consist of vessels, built as such, carrying perhaps 200 mines; of destroyers, carrying perhaps 60; or of E-boats carrying perhaps a dozen. Surface minelayers can lay either moored or ground mines; submarine minelayers can also lay both types of mines; but ground mines only are laid by aircraft.

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Fleet Minesweepers are men-of-war built as such for this special purpose, carrying in most cases all types of sweeps, and having a complement of about a hundred officers and men. They come into the general category of major warships, and they are manned by regular R.N. or Reserve, as opposed to Patrol Service, personnel.

Smaller Minesweepers comprise Admiralty Trawler Minesweepers and Motor Minesweepers. The former are used for moored minesweeping and are built for this special purpose; they have a complement of about thirty officers and men. The Motor Minesweepers are small wooden vessels, designed to sweep ground mines; their complement is about 18 to 25 officers and men. Both types are manned by R.N. Patrol Service personnel.

Auxiliary Minesweepers consist of a very large variety of converted craft taken up at the commencement of the War, including paddlers, fishing trawlers, hoppers, drifters, lighters, etc. They vary in size and complement, and require equipment in many different sizes. They, too, are manned by the R.N. Patrol Service.

Minesweeping

As our ocean Convoys approach the U.K., they usually split and follow the coastal swept channels. For navigational reasons they generally make their landfall at some well-defined headland, and it is natural that not only our coastal channels but also the points of landfall are attractive localities for enemy minelaying.

The object of our minesweeping forces is to ensure safety from mines of all sea traffic—both naval and mercantile. Minesweeping tactics are dependent on whether the enemy minelaying is " offensive ", or " defensive."

Offensive Mining

If he is laying offensively, *e.g.*, to cripple our coastal trade or to close the approaches to our ports or harbours, our task is firstly to discover the mines and then to clear them. The discovery of mines is achieved by searching sweeps; the clearing of mines by clearance sweeps.

Searching sweeps are carried out daily in the coastal channels and approaches to the estuaries and ports, either by day or by night, the sweeping forces covering their own particular piece of water and working from the minesweeping bases along the coast. Around the U.K. there are about 2,000 miles of water, which are swept once every 24 hours, providing the weather is not too bad. This entails a very large amount of hard work, not only on the part of the sweepers themselves, but also on the part of the Base staffs ashore, who maintain the ships in running order, both as regards their engines and minesweeping equipment.

These searching sweeps are carried out by sweepers in an extended formation in which only a certain percentage of the water is actually searched; but it is sufficient to discover whether mines are present in the channels or not. Should mines be found, a dangerous area is at once declared, traffic is diverted and the clearance sweep started, although it may not be necessary for the latter to be carried out at once. If, however, time does not admit of diversion, then the sweepers must sweep through the dangerous area ahead of the traffic.

Clearance sweeps are carried out by a close formation of sweepers and necessitate very careful station-keeping, accurate navigation, and quick action in emergencies. Each lap has to be buoyed by dan-layers who follow the minesweeping formation so as to ensure no " holiday " being left. These dan-layers are the

hard-worked, little craft which carry the dan-buoys. They usually leave harbour in advance of the minesweepers and get home a good deal after them.

Defensive Mining

If the enemy is laying defensively, *e.g.*, if we are on the offensive and the enemy is trying to defeat our advance by mines, we must provide protection from mines to our advancing forces without waiting to carry out searching sweeps beforehand, because that would prejudice any element of surprise. Such a minesweeping operation might be required to clear the passage for forces making a raid on the enemy coast.

It might be of interest here to remark upon the bearing of the tide and tidal stream on minesweeping. Naturally, tidal streams have little bearing on the problem of sweeping ground mines, but the rise and fall might be sufficient to enable them to be swept in safety at H.W., where it would be unsafe at low water. In the case of moored mines, the same remarks apply as regards the height of the tide ; but an appreciable margin of safety can be obtained by a strong tidal stream which will cause them to dip below their normal depth. Indeed, in certain waters, this dip may be sufficient to enable safe sweeps to be carried out between, say, three hours before and two hours after high water ; whereas if the tidal stream had not been so strong, the sweep might have to be curtailed to one hour on each side of high water.

Discovery of Mines

There are three main methods of discovering mines, firstly by the routine searching sweeps just mentioned, secondly by casualties, and, thirdly, by visual observation in the case of aircraft-laid mines. In order to provide for the last-mentioned, a system of minewatching has now been organized at all the main ports. This not only gives warning of minelaying, but also enables the sweepers to be put on to the lay as soon as possible, without having to carry out a searching sweep beforehand. These minewatchers are largely composed of seamen who are unfit for sea service ; but the greatest assistance has also been rendered to this organization by the Home Guard, by military personnel, and also by employees of private firms having factories in the vicinity of the various water-fronts. In addition, Wrens are now being employed on this important duty.

Dispositions

The world-wide disposition of minesweeping forces is the responsibility of the Minesweeping Division at the Admiralty. In Home Waters the disposition of our minesweeping forces is organized in accordance with the limits of the Home Commands, and each Commander-in-Chief is responsible for the sweeping inside his own Command. These Commands have several Sub-Commands, most of which have their own minesweeping forces and their own section of the Coastal Channels for which they are responsible. Usually the Commander-in-Chief has a Staff Minesweeping Officer, and Sub-Commands have their Captains or Commanders or Lieutenant-Commanders M/S to look after the minesweeping organization. Approximately 600 smaller and auxiliary minesweepers are employed around the coasts of the U.K. at the moment. Our Fleet minesweepers are primarily employed on clearance work after mines have been discovered by the routine searches of their smaller brothers ; but, in addition to this, they are used for searching or clearing sweeps ahead of any offensive operations, or of the main units of the Fleet when operating in mineable waters which are not normally searched.

Abroad, the disposition of our minesweeping forces follows closely that of the Home station, but on most foreign stations the necessity for long coastal sweeping is not so great as it is around England.

The dispositions of our minesweeping forces are also governed, like our minesweeping tactics, by the enemy's anticipated minelaying policy—*i.e.*, whether this is one of offence or defence. For instance, it is unlikely that the Japanese would lay mines during their offensive and while they were still gaining ground, because they would be liable to interfere with the movements of their own forces. But when the tide turns and we start to advance, we must expect them to employ defensive minelaying to cover their tracks. This will obviously call for Fleetsweepers to clear the waters ahead of our Fleet. On the other hand, during the enemy offensive against Holland, Belgium and Russia in the Baltic, heavy attacks were delivered by minelaying aircraft to prevent local forces operating either in defence or to escape.

Operations

Minesweeping operations are normally slow and monotonous. The routine searches entail early departure from harbour and late return. For days or even weeks no mines may be encountered, and it may be difficult for crews not to lose sight of the value of their work of ensuring that no mines exist in coastal channels. It is only during clearance operations that interest starts and these are usually prolonged far beyond the time originally anticipated due to weather, parted sweeps or attacks by aircraft. It is essential during clearances that there should be good visibility and that conditions should be suitable for accurate station-keeping, and for the dan-buoys marking the laps to remain in position over night so that the sweepers may know the extent of the water already cleared when starting again on the following day. Clearances are not normally carried out at night.

The following couple of examples of actual operations may illustrate more clearly how long clearances may take :—

(i) In August, 1940, a small raid by only about three aircraft took place between 2.0 and 2.30 a.m. over a harbour where a certain number of ships of the Fleet were assembled. The sweepers went out at 4.30 a.m. to ensure that the passage out of the harbour, at any rate, was clear, leaving the anchorage to be cleared later. Two mines were swept up about 9.30 a.m., and two more between noon and 2.30 p.m. (It must be mentioned that the system of mine-watching was not at that time fully organized ; had this been so, it is probable that these four mines would have been swept earlier.) It was thought that about ten mines had been dropped altogether. Two further mines were swept during the next 48 hours and a further two during the 24 hours following and the remaining two suspected were left for a long time. In effect it took four days to sweep eight mines.

(ii) On another occasion, mines were discovered in one of the Coastal channels by casualties to a convoy. A dangerous area was declared and subsequent convoys diverted. A Fleet Minesweeping Flotilla was ordered to carry out a clearance involving an area of about 9 by 7 miles. This took, in all, three weeks to complete, during which period 35 mines were accounted for. In this case the long time was chiefly due to thick weather and consequent difficulty of navigational fixes. The casualties to our forces during this period consisted of one fighter plus pilot shot down and one Commanding Officer and 1st Lieutenant of one of the Fleetsweepers killed by dive bombing. Had we

not had the constant support of the R.A.F. on every sweeping day, there is no doubt our losses would have been far greater, for, it must be realized, vessels with sweeps out are not able to take avoiding action or pay too much attention to interruptions to their own main object, *viz.*, the clearance of the minefield.

It will be seen, therefore, that each mine clearance operation requires a certain amount of planning and a good deal of time in order to ensure that the water will be 100 per cent. cleared.[1]

POST-WAR MINE CLEARANCE

The effect of aircraft minelaying will be very severely felt in the post-war mine clearance operations around the coasts of the U.K. in particular. Not only is there a very much larger area which has become mineable as compared to 1918, but, in addition, the accuracy with which the layer knows the position of his mines is considerably less, when dropped from the air, than when laid from the surface. Even with the information given by the enemy, the position of many mines must remain extremely doubtful. After the last war, mine clearance took twelve months to complete ; but it must be anticipated that at the end of this war it will take at least two years, during which time all traffic must still be confined to swept channels, for coastal navigation at any rate.

CONCLUSION

Before concluding, I would like to say a few words about those who produce the sweeping equipment for the operational minesweeping vessels. In the last war, as I have said, we were only up against the moored mine against which we were already provided with sweeping equipment. About October, 1939, we started having casualties, particularly on our East Coast, in waters which had already been swept for moored mines ; it was obvious, therefore, that the enemy were using an entirely new type of mine. This was not completely unexpected, but it will be sufficient for me to say that we were sweeping this new type, the ground mine, by the first week in December, 1939, in order to show what a very large debt we owe to that Department in the Admiralty and elsewhere who think out and design these antidotes. It has been due to the bravery and brains of naval officers and scientists, working in close combination, that we have been able to deal with these much-prized innovations of the enemy.

DISCUSSION

ADMIRAL SIR WILLIAM GOODENOUGH : I remember going on board the flagship one day in the last war and meeting your Chairman. The bows of his ship had been blown off the day before ; yet I remember his eager voice saying what he wanted to do—his mind full of every conceivable idea for the future. When our Lecturer spoke of " brains and bravery combined " I recalled this incident : it is a most admirable expression.

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[1] A few statistics may be of interest :—

(*a*) At the present time, there are in all parts of the Empire, approximately 1,100 British and Imperial vessels employed on minesweeping.

(*b*) During the first six months of one year, 16¼ million tons of shipping passed in and out of the Thames Estuary and the losses due to mines during this period amounted to about one ship in every 1,300.

(*c*) The total number of mines of all types swept in all parts of the world runs into the thousands, but it must be remembered that this relates chiefly to inside and not outside swept channels.

CAPTAIN E. ALTHAM, R.N. : I have a recollection of the difficulty we had in sweeping mines in a river where there was no safety margin due to the rise of tide, and where the water was so murky that we could not see the mines at any depth at all, even from the air. Has science now produced a safer way of doing it ? Let me forestall the obvious reply by saying that I allude to a river where there was no convenient towpath along each bank from which to haul a sweep, but one where minesweeping had to be done as at sea.

THE LECTURER : I think the only answer to that would be a shallow-draught moored-mine sweeping craft.

CAPTAIN ALTHAM : In fact, we used quite small shallow-draught craft for the exploratory sweeping, and, as far as possible, they cleared and buoyed a passage for the heavier draught sweepers ; but it was a very unpleasant job and we lost several minesweepers.

ADMIRAL SIR REGINALD TUPPER : The Lecturer has not mentioned paravanes. I remember a seaman in my flagship saying to me : " Please, sir, there's a mine come up on the starboard side and one on the port side." I got through on the wireless and the minesweepers came out. The minefield had only been laid a few hours before. Fortunately, our paravanes were out and swept through the minefield and brought these two up. I think the sweepers afterwards got twenty-two. Paravanes are still used, are they not ?

THE LECTURER : Certainly we use them, in men-of-war and merchant ships. They are a very good safety device.

THE CHAIRMAN

The Lecturer has given us a most interesting and instructive explanation of this very important part of the Service. I don't think we can stress too strongly the wonderful work that was done at the time when we had to find an antidote in a hurry to the magnetic mine.

His statement that we only had moored mines to deal with in the last war needs a little amplification. About November, 1914, the Germans tried an unmoored oscillating mine, which bobbed up and down just under the surface, drifting with the tide. Some of these were discovered in a harmless state, drifting as flotsam, but none damaged anybody or anything ; their venom only lasted a few hours and we never heard of them again. On the other hand, in the latter part of 1918, we in our turn laid magnetic mines at the bottom of the mouth of the Scheldt and the Schoonveldt. They did great execution to the German minesweepers and other small ships that put their noses over them. This minefield was laid before we had thought out any antidote, and, as Director of Minesweeping in those days, I was particularly concerned. To make it worse, peace came in about six weeks, and we were left with that unsolved problem. It is no secret to say that we never found a full-fledged antidote to that magnetic mine. Each weighed about one-third of a ton, and was concrete-cased, and we felt that by their weight they were bound to sink into the mud in time, and if they sank deep enough they would be far enough away from the ship's bottom to be rendered innocuous. But I shall never forget how, towards the end of the mine-clearance after the war, I was being pressed to clear the area of the Schoonveldt. We had tried experiments to see how fast these mines would sink into mud ; but, of course, we would not know whether the mud of the Schoonveldt was the same as where we were trying our experiments, and I had to take the responsibility of saying that the minefield was clear. A large liner was due to go over it about two days later, and I looked at the headlines each morning with great anxiety ; but I am thankful to say there was no headline news and everyone lived happily ever after.

Perhaps the saddest reflection of an old minesweeping officer is that during the twenty years interval between wars, when any expenditure on naval development was taboo, we did not explore the possibilities of an antidote to or improvement upon our original magnetic mine. These " secret weapons " are only one of the reasons why the minesweepers of this war have a more difficult time than in the last. The men of to-day have

proved to be just as fine, if not finer, seamen than we had in the last war, but over and above that they have had to imbibe a working knowledge of science, not only in regard to magnetism but in other ways, and before they return to civil life they may yet have to learn some other science.

One innovation of to-day is mine-dropping from the skies. As the Lecturer pointed out, when a submarine or surface ship goes mine-laying she can fix the spot by navigational marks quite accurately, and if she spreads her eggs she can still tell her friends of the dangerous area, and they can keep away from it until it has been cleared. But aircraft can drop mines where surface and submarine minelayers dare not go—anywhere and anyhow. The danger of this haphazard laying is that shipping is much more concentrated in an estuary or inside a harbour, and it cannot be deflected round the danger as it often can be off the coast. Moreover, despite mine-watchers, it is hard to assume how far the danger extends when these mines have been promiscuously dropped in darkness.

Two new and serious factors to-day are, firstly this mine-laying by aircraft, and conversely, the bombing of our mine-sweepers by the enemy when sweeping, and secondly, the need for expert handling of the gadgets of science. The first of these factors must extend the period of clearance after the War, and that will, incidentally, affect our meal menus, because many fine fishermen will have to continue fishing for these Nazi eggs instead of for Dover soles !

Let me conclude by tendering our thanks to Captain Evelegh, who has given up valuable time to preparing and telling us his story, and I am sure we all wish him, his Director and his Department continuous success ; and good hunting to the stout fellows all over the Seven Seas whom he directs.

The customary votes of thanks were accorded to the Lecturer and Chairman.

PROPAGANDA IN WAR

By Lieut.-Colonel H. C. Westmorland, D.S.O.

THE products of modern science have greatly increased the means by which the human mind can be influenced by the ideas of other people. A short time ago social groups, distant from one another in space, had relatively clumsy and slow means of intercommunication. To-day the exchange of ideas and culture and the transmission of news has been revolutionized by the development of swift and easy forms of locomotion, the rise of a popular Press, the invention and universal use of the cinema, of wireless and television. The field for propaganda has thus been immeasurably widened ; in fact, it may be said to be almost limitless.

In time of war it will always be difficult to reach the many peoples at whom our propaganda is directed. The radio is the simplest and best method, but its use is restricted by organized interference and by the imposition of penalties for listening to any but home broadcasts. The distribution of literature by underground societies and agents is possible, and this method is being used to-day in enemy and enemy-occupied territory. The dropping of leaflets from the air can only achieve results locally ; but if news of some really dramatic event can be proclaimed, which will start a whispering campaign, the method is justified. For home propaganda all means of dissemination are available, even in war time, with the single exception of television. Radio, the cinema, the Press, literature in various forms, the picture poster, photography and, finally, the theatre, can all become the media of propaganda according to the level of culture and the special interests which characterize the community to whom it is addressed. Thus the well-known British dislike for propaganda can be overcome by the publication of photographs or " straight " news with a suitably suggestive comment. On the other hand, Italian propaganda panders to their national weakness for boasting and exaggeration by highly coloured descriptions and over-stated claims.

Propaganda directed to our Allies is just as important as that directed at our enemies. To maintain unity it is necessary to circulate all ideas, ideals and policies among the United Nations, so that civil and military co-operation may be whole-hearted. The need for such propaganda has been amply demonstrated by the remarks of Sir Walter Monckton as the result of his visit to the United States. He has pointed out that the British point of view is not fully understood either in Canada or in the United States. Even if our Government's point of view is appreciated by the Government of the Dominion or of the United States, this is not enough. What really matters is that the people of the United States should understand and be understood by the people of Great Britain. Unfortunately, the average Briton is not a good propagandist, so that even if more of us had the time or the money to cross the Atlantic, the matter is still one that can be dealt with best by talks over the radio or through the medium of the cinema. What is required is a first-rate film, produced by a propaganda genius, showing our peculiar problems of to-day against a background of the history of the British Commonwealth of Nations. Such a film might present our case to our partners in such a way as to dissolve ideas current about Imperialism.

An article in an American journal that received considerable publicity here has further emphasized the insufficiency of British propaganda abroad. Our propaganda seems to lack the emotional factor which is necessary for the successful

presentation of many of our problems, and there is a tendency to place our trust in the recital of bare facts and to leave these to speak for themselves. Arguments that fail to arouse emotion are inclined to fall on deaf ears. On one of the rare occasions we have been privileged to hear the Greek Minister of Information on the air we were treated to a passionate address which portrayed vividly the cruelty of Nazi injustice, the systematic starvation of the peoples of Greece and their proud unforgiving spirit and patriotism. His narrative furnished a model for all British propagandists. This appeal to sympathy was so successfully employed by the Germans in exploiting the " poor man " that the Allies were bluffed into relaxing their claims to indemnities for the War of 1914–1918. Perhaps the most curious form of appeal was made by Hitler when he said : " When Napoleon retreated from Moscow in 1812 and his army was finally wiped out, the cold was 25 degrees below zero ; but the most severe cold we have experienced at the front was 50 degrees below zero."

The first aim of propaganda directed at our enemies must be to achieve their demoralization, and this can be done by convincing the enemy that they are bound to lose the war, and that they are, at this moment, undergoing greater privations than we are. The second purpose is the division of forces within the enemy territories. This can be effected by showing that certain sections are receiving unfair treatment from the national directorate. Once internal or sectional disaffection has been produced, provocation should continue until open conflict breaks out.

The success of the Northcliffe propaganda in 1918 was due to his careful presentation of the truth. He based his attacks on hard facts, which were well expressed, and which were without any of the appeals to history, humanity or heaven, that have become such a feature of the Hitler technique of to-day. Thus, late in the same year Northcliffe was appealing to the national aspirations of the Austro-Hungarian Republic. Before that he gave ever-increasing publicity to the rapidly mounting Allied resources and played on the uneasiness in German dockyards by reference to the doom of the U-boats and the fate of their crews. The plan of campaign to-day will be similar in outline and purpose.

Good propaganda causes the focussing of lines of thought into a desired channel. The flow of suggestive ideas will be easier if these are propagated at a time when the group of people to whom they are addressed are most susceptible to them. Thus, in time of war, a favourable strategic situation should be the opportunity for suggesting defeat for the enemy nations; in other words, the moment is then ripe for aggressive propaganda. Such a course was taken in the Summer of 1918, when all our propaganda was offensive and aimed at persuading the German people that further resistance would only add to their ultimate ruin. Five months earlier, when the German March offensive was taking place, the same course of action would have been doomed to a miserable failure. For a like reason it may be contended that the dropping of leaflets over Germany by the R.A.F. in the early days of the present war was premature and therefore badly-timed propaganda. Our military resources and the strategic situation in 1939 and 1940 did not justify attempts to incite either revolt among the enemy peoples or mass desertion in the ranks of their armies.

The extravagant praise meted out to our leaders in Libya before Rommel's last offensive can be classified as injudicious rather than premature. It was a pity that Axis propaganda was given a good weapon for discrediting the reliability of our news. Another unfortunate result was that the subsequent advance of the Axis forces into Egypt dashed many hopes thus falsely raised by mistimed propaganda.

The correspondent of a reputable daily attempted to write down the fighting quality of the Afrika Corps in a story of the desertion of a small party of German soldiers who had been guarding about a hundred Fighting French troops. A British patrol had appeared on the scene and the Germans were represented as needing but little persuasion to return to the British lines. This was a bad suggestion. The moment had not arrived to devalue the German soldier, and such insinuation, if believed, is likely to lead to extreme public disappointment at any temporary reverses to our arms that must occur before the final victory.

The value of the initiative is as great in the sphere of propaganda as it is on the battlefield. The enemy can be forced to adopt defensive tactics. Thus the Nazi boast in November, 1941, that the Russians were defending their last line has been turned against them in such a way as to force them to speak of desperate Russian resistance and the difficulties of the terrain. When President Roosevelt presented the Budget in his message to Congress in December, 1941, by giving the impression that the United States would mobilize all available industrial and military power with speed and determination, the Nazis were forced into defensive tactics and made frantic efforts in their Press and radio to destroy this impression in Germany, in occupied countries and in the puppet states.

Profiting by military successes such as the fall of Tobruk, the invasion of Egypt and the advance to the Caucasus, the Axis powers at once intensified their propaganda in the Middle and Nearer East. The Mahommedan countries were naturally the target for this onslaught. In Turkey the theme revolved round that country's historical distrust of Russia. The Anglo-Soviet Treaty was the excuse for insinuations or assertions in the Press that there are secret articles in that Treaty, and that they provide for the satisfaction of Russian territorial desires at Turkish expense. In Persia, too, thought has been directed against our Russian ally. German newspapers and broadcasts refer to the dangers of food shortage in the Spring because of an unsatisfactory harvest for which the Russians are responsible. Rashid Ali, the main instigator of the 1941 revolt in Iraq, was used by the Germans to further the idea of independence for India, which, he avers, is connected with the independence of the Arab countries. Japanese propaganda is careful to point out that Japan has no territorial aspirations in India, and only hopes that the Indians will free themselves and prevent India being used as an anti-Japanese base. All this Axis propaganda has been aimed at driving in wedges between Britain and her Allies, and was nicely timed. Here is an example of political warfare marching in step with military events.

The political warfare of the United Nations has for one of its aims the discrediting of enemy leaders in the eyes of their peoples. While the achievement of this aim might prove almost as decisive as a victory on land or sea, success is extremely doubtful. Let us consider the effect on us of propaganda against King George VI or Mr. Winston Churchill. To us it would either cause a hearty laugh or merely annoyance. Nevertheless the attempt to discredit the Nazi leaders has been in progress since the beginning of the war, if not before that, and recently the B.B.C. have been broadcasting comparisons of extracts from *Mein Kampf* with some of Hitler's utterances during the present war. Peculiarly apt was the quotation from *Mein Kampf*, page 150 : " In the space of Russia lies the defence against irresponsible attacks. Success there could be won only after long and heavy battles. The risk seems to be too great for a frivolous attack." Nazi broadcast statements are equally vulnerable. This statement went out " Transocean " on 26th September, 1942 : " It was announced on September 25th that by order of the Reich Protector, the

Orthodox Church has been dissolved in the Protectorate. Any further activities of the Church have been forbidden and its property confiscated." A few days later, on 8th October, the following was broadcast to Holland: "We declare openly before the whole world that the Orthodox Church in all territory under our jurisdiction has never been attacked by the Germans; on the contrary, the Germans are guaranteeing its full freedom to develop."

For home consumption, one of the aims of propaganda must be the stimulation of a warlike spirit to counter any sympathetic feelings that may exist towards the enemy. The Hymn of Hate, that comminatory chant that caused so much derision in England during the last war, was probably produced to revive bitterness against England in a country that was rapidly becoming indifferent to that war.

The counteraction of fear and anxiety must be another task for the home propagandist. The Nazis may have noticed indications of lowered morale resultant from the R.A.F. visits, and this may partly account for the attempt to bring into the limelight the question of the alleged manacling of German prisoners captured in the raids on Sark and Dieppe, also for the accusations in their Press of the inhumane behaviour of British troops generally. Thus the *Voelkischer Beobachter*, the principal Nazi paper, writes: "The Geneva Convention cannot be applied unilaterally. British outrages are not surprising. They are part of a tradition of a mercenary army taught to believe that all wars are punitive expeditions against rebellious natives."

The condition and susceptibilities of the population at home must be carefully fostered by suitable propaganda, which should have a unified policy. Thus, to keep the civilian population cheerful and willing to serve and work, the Ministry of Information must have a full knowledge of the social conditions under which these people perform their work or service. The medicine can then be prepared. Similarly, if it is necessary for the Ministry of Supply to demand longer than normal hours of work, and possibly no regular days of rest, it is essential that the Ministry of Information should have prior knowledge of the facts. The consequent appeals to a population already suffering from the strain of war will be adjusted to suit this particular condition. Thus propaganda becomes subsidiary to morale, which in turn maintains the war effort of the nation at a high level.

Propaganda to the fighting Services can be based on similar principles, but where organized bodies of men are concerned, the administering of the daily or weekly dose is an easy matter. The material is carefully prepared in the publications of the Army Bureau of Current Affairs, and, provided the young leaders have character and pertinacity to put these ideas over, every soldier should know what he is fighting for and know that it is better than what the enemy is fighting for. There is a definite need for a crusading war aim, and such aims and ideals must form part of the national war effort, especially in view of the character of total war.

A study of the enemy propaganda for home consumption often reveals the general condition and thoughts of the people. Thus it is permissible to assume that recently the Nazis have observed signs that the population is showing signs of weariness. Speeches by Hitler, Goering, Goebbels and Ribbentrop were evidently intended to counter a certain feeling of disappointment that must have become noticeable, since the German people were adjured to be patient; they were told they would then find that the worst was over and they would be able soon to profit by the fruits of their hard work and settle down to enjoy them. The semi-official Press sought to allay anxieties about the Russian front by placing much stress on

the preparations which had been made to safeguard the armies in Russia against the cold, and allusion was also made to certain measures for dealing with the partisans, those gallant guerrillas who harass the German back areas and cause them so much trouble. A study of the remainder of the German Press showed attempts to set at rest certain misgivings about the six million foreign workers now employed in the Reich. From this abundance of propaganda it is justifiable to deduce that symptoms of despondency actually exist among certain sections of the enemy population.

As the result of constant reiteration, the German people have been convinced that the Armistice of 11th November, 1918, was due to treason, and that their armies were undefeated in the field. They believe that, but for treachery, the war could have been brought to a victorious conclusion, in spite of official records which show that the decision to seek an armistice was purely military and was against the wishes of their politicians. This idea has been an important factor in the recovery of German national morale since 1918, which illustrates not only the danger of propaganda as a prelude to war, but the necessity for counter-measures on our part. After the final victory it will be the duty of the United Nations to keep the German people better informed.

THE TWO-GROOVE RIFLE

By CAPTAIN E. H. ROBINSON, late 60th Rifles

THE production and issue of a new service rifle, having advantages not only in cost and time economy in manufacture but also in accuracy, is a feat of which, as a nation, we can very reasonably be proud to have achieved during a war of world dimensions. That such an adventure is only a part of the measure of our unpreparedness for major war does not in the least detract from the thanks due to the determined body of men responsible for research, experiment, design and production.

The adoption of two grooves instead of five in the No. 4 Mark II rifle is a somewhat startling innovation, particularly to the student of small arms who is aware of the difficulties encountered in the days of the muzzle-loader when the two-groove Brunswick (1839) and the three-groove Enfield (1853) were adopted in course of the search for means of overcoming the difficulty of forcing the projectile down the bore after the first shot. The Brunswick, issued to the 2nd Bn. The Rifle Brigade, fired a flanged ball, was not a success and was soon withdrawn. The Enfield fired a cylindro-conoidal, hollow-pointed, hollow-based bullet. It was good for its time and in 1867 was converted into the Snider breech-loader.

The history of the new rifle is interesting and goes back to the days immediately following the War of 1914–1918. The short magazine Lee-Enfield, then the British Service rifle, was not designed for mass production, the principles of which were not understood when the rifle was adopted in 1902. The disadvantages of slow production were so great that the P.14, of Mauser type and manufactured in the United States, was adopted as an auxiliary weapon.

In the field the S.M.L.E. proved itself a very fine weapon, particularly in the important matters of handiness and rapidity of fire, in which it excelled all others, even the very well-designed Springfield. It was desired to retain these advantages in the mass production rifle to be designed. To this end it was decided to adhere to the main lines of the S.M.L.E. for the new rifle.

The following points were decided upon as important, besides fitness for modern mass-production :—

(1) Improved accuracy attained by a heavier and more sturdy barrel, an aperture sight and better stocking up arrangements.

(2) Lighter and better fitting bolt, bolt-head and bolt race.

By 1931 a few thousand of the new rifles were made up for troop trials. There was, however, no money to proceed to production, and when the rifle was finally adopted it was put on one side to await an emergency. It was known as the S.M.L.E. Mark VI. These original rifles were withdrawn from store and issued to the Arctic Expeditionary Force in the early days of the present war.

The emergency had arrived and, whilst arrangements were being made for production, some further experiments were carried out in the light of experience gained since the trials of 1931–32. A few minor alterations were made, but the real innovation was the reduction of the number of grooves from five to two. The No. 4 Mark II rifle defied all pre-conceived notions and proved not only cheaper and quicker to manufacture than the No. 4 Mark I, but more accurate. With good ammunition it is the most accurate rifle ever issued to the British Services.

THE ADVANCE

By Captain W. R. Young, M.C., R.A.

He who with inferior forces advances against his foe is a rash General. In considering the tactics of the advance we must, then, assume that the assailant's strength is greater than that of the defender. For that, after all, is the assumption which the General has made.

The defender will be permitted in this article to produce any kind of opposition except absolutely superior forces.

An advancing column can always be held up by an inferior force, since the head of a column is narrow and the head alone will be inferior in strength to the defenders opposing it. This means undue casualties, and probably a shaking of confidence which will affect the whole rate of advance. It will at least mean delay till the units in rear can deploy.

The complete answer to this problem is to advance fully deployed and to use the superior numbers to envelop the defenders. But such an advance in line has its own dangers, since an active enemy may concentrate at a selected point, pierce the thin line and play havoc with communications.

An advance in line, moreover, is not a practical proposition in ordinary country; so we compromise by saying that the advance must be made on as wide a front as possible. We must perforce move mainly along roads, but we must use many roads.

By using several parallel roads for the advance of our columns:—

(*a*) we compel the enemy to disperse his forces;

(*b*) we shorten our columns and so make deployment, when it becomes necessary, more rapid;

(*c*) we force the enemy to make wide detours if he wishes to attack our flanks;

(*d*) we are always disposed for defence in depth against such attacks; and

(*e*) the advance of the whole of our forces is more speedy.

Nevertheless, it is sometimes argued that it is better to use only a proportion of the available roads since that will facilitate: (i) diversions of traffic, (ii) altering the order of march, and (iii) deployment.

Let us examine these claims.

(i) *Diversions.*

Suppose that of four roads A, B, C and D we decide to use A and C. If presently we find our progress on A and C blocked we can divert our columns on to B and D. But we can do this even if we started by using all four roads. The columns on B and D will have moved forward unchecked and the diverted columns can follow on behind them. We will then be in the formation recommended by the "diversionists." But by adopting it late we shall have gained a lot of time and be deeper into the enemy's country. And anyway, why jump our fences before we come to them? It is possible that only one of our roads or even that none of them will be seriously blocked.

(ii) *Altering the order of march.*

This may be rendered necessary by a change in the situation. (Here again we are jumping our fences too early.) But it is rarely impossible for a unit in rear to pass up in front of a forward unit which is halted on or parked off the road. It is far more likely that we shall fail to find lateral roads conveniently placed for our transposition plans.

(iii) *Deployment.*

Infantry can deploy across country; artillery of all types deploys by coming into action in the nearest field. This leaves the machine-gun trucks, the R.E. transport and possibly Army tanks to be passed up the road. But there will now be nothing in front of them. We conclude then, as we started, by stating that the advance must be on as wide a front as possible. And we shall use all the available roads.

The motorist knows that by sticking to the main roads he will get along quicker than if he takes a short cut by country lanes. The motorized soldier must guard against this main road mentality.

If there are few main roads available for his advance, the General must have no hesitation in using minor roads or even tracks. No fears of map-reading difficulties or complications of control will excuse him from his primary responsibility, which is to send his forces forward in the best fighting formation. His subordinate who is leading the column on the minor road may be relied on to produce his troops in the right place and, since he will know the General's intention, he will not be in need of frequent orders while on the march. (His wireless will be functioning, anyway.)

Moreover, the minor roads and tracks will be less likely to be blocked by demolitions, shelling or bombing than the main roads. And they will be carrying the attacking troops forward on the line of least expectation. It is probable, indeed, that the column on the minor road will, at the end of the day, be ahead of the columns on the main roads; and that it will be this column which will surprise the enemy and find the gap in his defences.

Having now secured that the Division is advancing in fairly compact form we can proceed still further to shorten our columns. This we can do by closing them up.

The main reason for our wide dispersion of vehicles on the road is fear of aircraft. But this danger has been greatly exaggerated. No roads in this war could have been so persistently and accurately bombarded as were the roads leading to the forward areas during the Paschendaale offensive in 1917. Yet on those roads there was a continuous stream of head-to-tail traffic in both directions by day and night.

In mobile warfare conditions we are unlikely to meet such concentrated shelling; and air attacks on roads are not as accurate nor as sustained as artillery bombardment. Moreover, the troops on the road can reply to and diminish the effects of air attack by their light A.A. and small arms fire. And it is possible for our Air Force to prevent it entirely.

There is far greater danger to-day of an attack on the flanks of a column by armoured formations, by guerrillas or parachutists. And it is difficult to guard against these if our flanks are thirty or forty miles long. By spacing our vehicles

at sixty to the mile instead of twenty and by using four routes for our advance instead of two we shall divide the length of our columns by six.

So far, the only opposition we have encountered has been put up by our own side. But it has not prevented us from going forward rapidly and in a strong formation, a *bataillon carré*. We must now prepare to meet the enemy's opposition. This will provide a variety of problems, and for each problem there will be various solutions. But certain general rules may be laid down for the guidance of our column commanders.

(i) The principle of *thrusting forward*. Each commander will be more concerned with going ahead than with anything that is happening to the other columns. He will, of course, keep in touch with them and he will strain to catch up with his neighbour. But he will not mark time to enable his neighbour to catch up.

(ii) The principle of *mutual support*. Since all are working for a common object, each commander will afford to his neighbour any support which may be necessary. But he will usually find that he can help best by pressing forward himself. He will thus threaten—and so hasten—the retreat of the enemy's detachment which is holding up his neighbour's column.

If direct support is required he will often be able to provide this with his artillery from their normal areas, while his other troops continue their advance.

The columns on the flank routes will, of course, always be aiding the other columns, since they will be acting as flank guards. But those on the interior routes will not be absolved from the responsibility of deploying guns and machine-guns to give depth to the defence of the flank. And the interior columns may reasonably be expected to be the spearhead of the advance—to seize bridgeheads and key positions for the general benefit.

(iii) The principle of *non-interference*. Each commander will avoid trespassing on his neighbour's area or appealing for his aid without good reason. Diversions on to a neighbour's route may sometimes be necessary, but any column so diverted will accept the treatment of a poor relation rather than demand the privileges of a guest, and it will take the first opportunity to get back on to its own route.

Of these principles the most important is the first. This it is which produces the speed which is so essential in war, whether our object is to envelop a flank, to penetrate a centre, to seize a key feature or to forestall the enemy's concentration by our own.

These are physical objects ; but we may note that speed is not least among the moral weapons.

We will now look over the hill and consider what the enemy may do. His object is to stop our advance or, at any rate, to delay it. We are determined that nothing shall stop us and that delays will be reduced to a minimum.

The enemy, to achieve his object, will make use of material resistance, which will take the form of demolitions, and of human resistance, which will take the form of ground or air defensive and offensive action.

Material resistance cannot stop us, but it is bound to delay our progress. Human resistance may stop us entirely, but it may not even delay us.

As a general frame for the pictures which we shall now begin to paint we shall assume that the Division is advancing by four routes A, B, C and D. And we shall deal with material resistance first.

Demolitions can take various forms, but space confines us to the consideration of a single case. We will suppose that route A is completely blocked by the explosion of a delay-action mine in a defile. The commander of column A will now apply his principles. First he will send his infantry over the crater on their feet, accompanied by such supporting arms as can be carried across the obstacle. A troop of field artillery will be immediately deployed, and an observing officer and signallers on their feet will take forward a telephone line to the best view point. Thus artillery cover for the marching infantry will be ensured for the next two hours.

Column A is thrusting forward, though at only a quarter of its former pace.

Its commander must next consider his responsibility of protecting the right flank. Here again he must give short measure. He cannot, perhaps, send an anti-tank gun forward—though these weapons can be remarkably nimble—but he can bring a couple into action on the near side of the crater to guard the *right rear* of the Division since he cannot guard its right. Machine-guns and mortars must, of course, go forward with the infantry, but they will be moving at walking pace ; so the interior column will perforce progressively expose its flank as it forges ahead.

Column A is not performing its task of supporting column B to the full. But it is doing something towards it.

Contravention of the third principle is also inevitable. The bulk of the vehicles of column A must be diverted on to route B ; but not all. The Royal Engineers will remain on route A to deal with the crater, and some light A.A. guns will stay to protect them at their work, as also will a bus load or two of infantry. The transport which has been diverted may be able to get back to route A before many miles have been covered. And the column, weakened only by the detachments left behind at the crater, will soon be able to resume its full role of right flank guard.

Column A has had to trespass on its neighbour's ground. But its interference has been on as small a scale as possible.

It may be objected that the case will not be so simple if the demolition is a destroyed bridge over a deep and wide river. Naturally different ills call for different remedies. But it is true to say that, in general, there is hardly any obstacle which can prevent infantry from going forward, and no obstacle at all which can hold up the gunner's weapon, the shell. As for rivers, a Rhine should not prove a permanent obstacle any more than a Meuse or a Salween.

Human resistance, however, is the incalculable element in war. It will have to be overcome by fighting, and then anything may happen. But sound principles can help us to success.

We are already disposed in fighting formation on the road, and our advance must be conducted in such a way that the Division may be likened to a porcupine, bristling with quills all round. The quills, of course, as in the Flying Porcupine, will be made of fire. To achieve this object we must be constantly deploying our artillery, since artillery on wheels has no quills. Artillery of all types, therefore, must be well forward in the order of march and will drop out at intervals along the route. The guns so deployed will be piquets till the whole of the column has passed.

War, it has been said, does not admit of schedules ; but the effective ranges of our weapons suggest that a unit of field guns should deploy at every fifth or sixth mile. Anti-tank units should by the same token deploy at every mile ; but the nature

of the country will often enable us to economize on this item. Light A.A. units will normally be deployed at defiles.

Overtaking.

In a long advance over country where we may expect ground attack from the flanks we shall soon run out of artillery if we insist that the piqueting guns, when they resume their advance, shall remain at the tail of the column. They must, on the contrary, make their way up the column by travelling at higher speed and by not observing the routine halts. It will be noted that a troop of guns moving at thirty miles an hour will catch up five miles in the course of a routine halt; and, as the normal speed of a column of all arms will probably be ten miles an hour, there can be considerable overtaking on the move. The principle must be accepted that the guns shall have priority. Otherwise they cannot provide continuous support.

Enemy air action.

This may take the form of bombing, spotting for enemy artillery, reporting our position, or dropping parachutists to make a ground attack on our flanks or rear.

The bombing, as has been said before, we can to some extent deal with, since some of our quills point upward. Reconnaissance machines will have to be dealt with by our own Air Force and heavy A.A. controlled by higher formations. Parachutists will find us ready. We cannot, therefore, permit any air action to delay our progress. And surely we need not take it as a foregone conclusion that the enemy will have air superiority?

The enemy's artillery.

Even without aeroplanes spotting for him, the enemy will probably shell the roads, on which we are advancing, with predicted fire. This may be very unpleasant, but it will probably have the effect of hastening our movements rather than delaying them. We cannot, while on the move, deploy a counter-battery organization, so we shall have to take our chance, comforted by the fact that the areas shelled by long-range guns will only be a small proportion of our route. The shelling will not become serious till we are within a few miles of the enemy's forward resistance zone. And by that time a higher formation behind us will have brought our own long-range guns into action; and the Air Force will have produced some reports and photographs.

The enemy's main resistance, however, will be more direct. Choosing his ground, he will bar the advance of one or more of our columns and we shall have to fight or manœuvre our way through.

If column B is thus resisted, the continued thrusting forward of column A may, by its outflanking threat, induce the enemy to retire without a fight. But if he hangs on we must examine his object more closely. He may wish merely to delay us by forcing us to deploy for an assault, intending to slip away when that object has been achieved. This is ordinary rearguard action. Or he may be holding the post as a sally port for an attack with strengthened forces against our communications, if we decide to by-pass him.

Both objects make it essential that the post should have communications with its own rear; that it should be a cape or peninsula, not an island. Therefore column A must not be content with *threatening* the enemy's communications. It

must *cut* them. That will ensure that this particular detachment will not repeat its game a little farther along our route, and that we are left with an island to deal with.

The next step will depend on circumstances. It may be decided that the island must be liquidated forthwith, which case is beyond the province of this article, since we are only concerned with the advance. But an alternative policy is to leave islands to be dealt with by troops following up behind while the leading troops continue to thrust forward.

In the latter case we are fulfilling our first principle. We must fulfil our second by detaching weapons to keep the island under slow but continuous fire so that the troops which are to attack it will have the maximum support. We must fulfil our third principle by not appealing for help from the Air Force. That arm will have plenty of more important jobs to do than those which can be performed by mortars and field artillery.

Protection.

That a column using an outside route should aim at throwing out a protective screen on its exposed flank seems obvious. But since we have no cavalry this will not be so easy. For our transport will be largely confined to roads, and we may already be using all of them. It will often be necessary, therefore, to dispense with a flank guard for the flank column.

We have already taken measures against being caught unprepared by moving in a compact formation and by deploying artillery as piquets along the route. We may consider it advisable in the flank columns to supplement these piquets with machine-gun sections; and, since we cannot send a troop of horse to comb the suspicious patches of cover which command our route, we may be permitted to give them a burst or two from our guns to drive away guerrillas or to induce them to disclose their presence. Advanced guards, however, we cannot do without since their absence will lead to delay. They deserve, moreover, a paragraph to themselves.

Advanced guards.

To be always one crest ahead of the main body is the aim of all advanced guards. But scout cars and carriers which dash recklessly up to and over crests will soon be knocked out by anti-tank guns and rifles and by machine-guns which are hidden on the forward or reverse slopes of these crests.

A policy of prudence would enjoin careful reconnaissance of the ground before the advance is made. But this will not do for a rapidly moving column. The vehicles of the advance must therefore dash ahead, but they should be preceded by a flurry of shells or machine-gun bullets to prepare their way. It is essential, then, that there should always be some artillery and machine guns in action to provide this covering fire for an advance *up to* a crest which may be held by the enemy. For an advance *over* the crest we shall also require some anti-tank guns to take up Wellingtonian positions on the near side in case the enemy sends over armoured vehicles in a counter-attack.

Our carriers will also pause on the near side. They must avoid appearing on the crest without further preparation; and good general rules to follow are that the first man who looks *over* a crest should be a *man on foot*, and that one of the earliest arrivals should be a Forward Observation Officer. He may have to

walk a mile, since some crests are very flat, but he will soon make up for lost time when he has by rapid reconnaissance made the plan for the next stage of covering fire, and so made it safe for his carrier to come up.

It must be remembered that the advanced guard may reasonably be expected to travel at a faster speed than—perhaps twice as fast as—the main body, so the pauses enforced by our policy of reasonable prudence will not delay the main body.

This speed of the advanced guard will have a considerable effect on our ammunition expenditure. For instance the approach to a crest a mile and a half ahead will demand only five minutes of covering fire. Nevertheless, to rid our gunners of inhibitions, we shall send forward a lorry of ammunition with the advanced guard. Ammunition is only useful when it is up forward.

Much more could be written about advanced guards. We could discuss the question of allowing them to commit the main body to action, as was so often done by the Prussian advanced guards in the War of 1870—which, incidentally, they won. We could discuss Napoleon's use of advanced guards to fix the enemy while his main body manœuvred to destroy it. But these themes are beyond our province. We have conducted the advance into the enemy's country, brushing aside all minor attempts to stay our progress. Presently we shall come up against stronger opposition—and all along the line; the advance will develop into the attack. Then, in the words of the Duke, " Let battle begin ! "

THE DEVELOPMENT OF AIR WARFARE IN 1942

TACTICAL developments, improved technical devices, greater numerical strength and greater skill acquired through efficient training have given the R.A.F. the initiative in the skies, while 1942 was a year of diminishing strength for the enemy air forces.

Heavier bombers, hedge-hopping to their targets, and faster fighters, carried the offensive to the Axis in daylight. Superiority over the *Luftwaffe* in numbers and types over all battle fronts, together with new tactics in co-operation with land and sea forces indicate the development of the R.A.F. during that year.

Bomber Tactics

Recent tactical advances and the use of four-engined bombers, together with the fast Mosquito bomber, in place of older two-engined types, enabled Bomber Command to hit the enemy far harder in 1942 than in previous years. More damage was done to German and Italian war industries, ports and railways, without any corresponding increase in the actual number of aircraft usually used in such attacks. Although a thousand bombers have been used at a time, this was an exceptional event; in the normal way Bomber Command operated with about a tenth of the entire front-line strength of the R.A.F.

The Germans were compelled to relinquish the idea of using Brest or any other port on the Atlantic Coast of France as a base for capital ships. Bombers were thus released for the attack on the enemy's war industries and communications, beginning with the devastation of the Renault Works outside Paris, in which the weight and precision of new and more scientific methods of bombing were shown. The advantage of the " saturation " attack was first clearly revealed in the raid on Lübeck on the night of 28th–29th March. The method used was to crowd all the bombing into the shortest possible time and, as the technique was developed, it was found possible to carry out very heavy attacks in as short a period as half an hour. Passive defences of a target are hopelessly confused by extremely rapid bombing, which quickly disrupts communications. Guns and searchlights cannot be concentrated effectively if large numbers of aircraft are over the target at one time.

By the end of the year four-engined bombers of the R.A.F. used in routine attacks greatly outnumbered the two-engined aircraft previously employed. Improved bombs, including the new 8,000 lbs. high explosive bomb, also appeared for the first time in 1942. Accuracy of bombing advanced with weight. Large fires started at the outset of a " saturation " attack increased the precision of bombing and guided late arrivals quickly to the target. The liberal and skilful use of very powerful flares dropped over the objective at the beginning of the attack greatly reduced the proportion of misses to hits.

In daylight raids, the technique of hedge-hopping across enemy country and then climbing over the target to the minimum height at which it is safe for aircraft to drop their heavy high-explosives was used by the twelve Lancasters which bombed the M.A.N. factory in Augsburg on 17th April. The same technique was used by the very much larger force which bombed the Schneider Factory at Le Creusot exactly six months later. The Schneider Factory was bombed at dusk; hedge-hopping protected the Lancasters on the way out and darkness on the way back. Dusk attacks provided the extreme examples of " saturation bombing." In the

attack on the Schneider Factory nearly a hundred Lancasters bombed within seven minutes. By contrast, the daylight attack on Milan on 24th October provided an example of using cloud cover instead of hedge-hopping across France to the Alps, the problem in this operation being to keep the force together to achieve concentration of attack.

Fighter Tactics

A notable development during 1942 was the conversion of the Fighter Arm into an offensive weapon.

Attacks by aircraft of Fighter Command on locomotives and barges in France, Belgium and Holland strained the enemy transport system, already deteriorating in the industrial areas of Western Europe. These attacks were not haphazard, but part of the long-term policy of the R.A.F. in destroying German communications. Since the systematic attacks began in the Spring, one Fighter Group alone has "shot up" more than four hundred locomotives, and flying in pairs or small formations, fighter aircraft have constantly harassed enemy troops and interfered with supplies in France and the Low Countries. This is one aspect of the low-level training our fighter squadrons went through in 1942 to perfect Army support technique. The whole of the air operations over Dieppe was controlled by one Fighter Group; gun posts and strong points were attacked by fighters, while bombers under the group control laid smoke screens to cover landing and withdrawal. The Army signalled from the beaches "Air cover faultless."

Fighter Command's offensive operations changed in character during the year, when fast and heavily armed Flying Fortress bombers became operational, they now fly faster and farther than our own light bombers previously used in daylight sweeps, and have proved that they are well able to look after themselves, they receive strong fighter cover as far as range permits both out and home. Offensively and defensively, fighters of one group destroyed more than five hundred enemy aircraft during the year.

The introduction of four-bladed propellers has once more given the R.A.F. superiority, and the new Spitfire is as far ahead of the F.W. 190 as our Spitfires of a year earlier were ahead of the M.E. 109. Some of these aircraft, together with earlier types, and also with Beaufighters and the latest Hurricanes, have taken part in the protection of coastal convoys. This less spectacular, but equally vital function of Fighter Command operations has led to a steady decline in enemy bomber attacks on the convoys and exacted a higher toll on the enemy. The score in May was two ships for fourteen bombers; in June, two ships for eighteen bombers.

During the year Fighter Command successfully developed the fighter-bomber for attacks against German shipping. Whirlwind aircraft have done extremely well, pressing home these attacks from mast height.

Coastal Tactics

In 1942, Coastal Command aircraft flew over 25,000,000 miles, mostly on anti-submarine patrols. Three hundred attacks were made on U-boats in 12,000 patrols, and over four thousand attacks were made on enemy shipping. Enemy submarines were attacked at their bases, or wherever they could be found at sea, persistent hunting forcing them to spend much of their time submerged and with their stings drawn. One of the most important, yet unspectacular, victories of the year was shared with the Royal Navy by Coastal Command aircraft—the successful passage of the convoys to North Africa. The armadas sailed to the West, unmolested by

U-boats, while Coastal Command carried out the greatest submarine hunt of the war in the Bay of Biscay and the Atlantic. The effectiveness of the screen was shown by the fact that no ship was lost—or even attacked—until Gibraltar was passed.

Enemy submarines using French ports as their bases were mercilessly attacked in the Bay of Biscay throughout the year ; Sunderlands, Whitleys, Hudsons, Liberators and Wellingtons, joined later by Halifaxes, carried out the operations. Beaufighters were thrown in as " police patrols " for bombers, which had forced the Germans to bring up flying boats, bombers and fighters badly needed on other fronts, in an attempt to intercept the U-boat hunters. Late in the year, the enemy concentrated their submarines around Iceland, but Coastal Command retaliated rapidly, Liberators and Hudsons maintaining daily sweeps in all weathers.

Army Co-operation Tactics

In 1942, there was a great change in the use of air power in support of troops in the field. Eighteen months before Army Co-operation Command of the R.A.F. relied almost entirely on the two-seater, single-engined Lysander for reconnaissance duties, but the introduction of the Mustang revolutionized the tactical use of military supporting aircraft. One man did the job of two ; 160 m.p.h. maximum speed was replaced by something nearer 400 ; these aircraft are as fast as fighters, well able to defend themselves and able to attack with energy, if necessary. Within a few weeks of arrival the first Mustangs were being flown over Northern France on offensive operations. A new and vital form of air warfare has been developed, in complete unity with the Army. It was fully tested in the North African operations.

North Africa

In the North African campaign, a party of R.A.F. ground personnel followed assault forces on to the beaches East of Algiers. The Americans had gone ahead to take Maison Blanche—a large airfield near Algiers, which became the first R.A.F. base in North Africa. When the R.A.F. troops arrived on the beaches and fell in on the road to start for the airfield, a squadron of Hurricanes was waiting at a distant base to take off. They landed during the morning and found the servicing party already there with fuel and supplies, and the squadron went into battle within a few hours of arrival. A detachment of the R.A.F. regiment came up with the vanguard of the Allied Armies and prepared the airfield for the approaching fighters and bombers.

During the North African campaign a new type of bomber—the Bisley—first came into operation with an attack on enemy shipping at Bizerta. Using the experience gained over Western Europe, Royal Air Force bombers and fighters developed a smashing offensive against Axis shipping off the North African coast. Beaufighters operating at night are chalking up the mounting score of enemy aircraft destroyed. Hudsons are ranging far over the Mediterranean on anti-submarine patrols. Co-operating with the U.S. Air Force in support of the army in Tunisia, our aircraft are often flying through shocking weather—for this is the rainy season in North Africa—to harry and disrupt enemy supply lines.

Malta

Emerging triumphantly from the trying experiences of the year, Malta is now actively supporting our North African Air Forces against Axis shipping. There has been a complete change in the situation. The year opened on an essentially defensive note, culminating in the Blitz of March and April ; then came the Spitfires,

and from May to July the testing of air strength ended in the R.A.F. gaining complete air superiority. Thereafter, with the exception of October's sharp and furious battle, the R.A.F. have been on the offensive. This offensive has been steadily increasing, and is now directly related to the efforts of the First and Eighth Armies; in fact, Malta has become an advanced base in the Battle of the Mediterranean.

India

Air operations from the India Command in the beginning of the year were mainly concerned with providing air cover during the retreat from Burma. In the first few months operations had to be made during the difficult and dangerous period of the monsoon; nevertheless, a concentrated scale of attack was maintained. Akyab, the most advanced Japanese base on the West Coast of Burma, airfields throughout Burma, Rangoon, oil refineries at Bangkok and ports in Sumatra, were the chief targets. An attempted attack on Ceylon was rendered abortive. To-day, Allied air forces are systematically increasing the offensive along the entire Indian front.

Flying Training

Sir Archibald Sinclair recently stated that some sign of deterioration has been noticed in German training; but behind the R.A.F.'s prodigious efforts this year lies a feat of flying training surpassing anything dreamed of in the early stages of the war. The R.A.F. is in no fear of running short of highly-trained crews. Research is constantly progressing in the application of new methods, machines and devices for training purposes. A notable development in Flying Training Command during 1942 has been the expansion of glider training; large numbers of army personnel have been trained by R.A.F. instructors. Another achievement during the year was the reduction of the accident rate to a gratifying low level. The development of the facilities for the rehabilitation of injured members of air crews was further continued, and at the main centre 80 per cent. of the patients were returned to their units for full or partial flying duties.

The Empire-wide training scheme for air crews has resulted in many new schools being opened, and new records have been made in the number of men trained. An unceasing flow of men drawn from all parts of the British Empire and Allied Nations pours out of Canada. Mr. Churchill described the Dominion as " the aerodrome of Democracy," and so paid fitting tribute to the continually expanding Air Training Scheme which now has 150 establishments. Under the new agreement which came into effect on 1st July this year, the United Kingdom will supply at least 40 per cent. of air crews to be trained in Canada, leaving 60 per cent. to be supplied jointly by Canada, Australia and New Zealand. Nine different nationalities were recently included in a graduating course at one training school.

With increasing numbers of students at the Air Observer Schools, as well as the Pilots' training centres and thousands of Flight Engineers and Air Gunners graduating from training establishments in Britain, the night and day Battle of Training on both sides of the Atlantic is going on at full speed.

New types of aircraft and bombs and steadily increasing numbers of aircraft and personnel bring 1942 to a close with the promise of approaching victory.

CORRESPONDENCE

(Correspondence is invited on subjects which have been dealt with in the Journal, or which are of general interest to the Services. Correspondents are requested to put their views as concisely as possible, but publication of letters will be dependent on the space available in each number of the Journal.—EDITOR.)

To the Editor of the R.U.S.I. Journal.

SEA, LAND AND AIR WAR

SIR,—For thirty years past, Britain has been to some extent a nation divided against itself. Controversy on the Irish question, *inter alia*, made Germany think that 1914 was a good date to start the first world war. Controversy on internal political problems, leading to our spending the bulk of our income on social services and " butter in preference to guns," made Germany feel certain of winning the second world war. For the past three years there has been a grievous difference of opinion about our major strategy. Admirals and Generals, who are almost completely in agreement, cannot accept the views of the Air Marshals as to the best way of winning the War with an independent Air Force.

A long chain of events caused the R.A.F. before the War to desire a maximum of independence from the other two Services. The Army and Navy were constantly urging the need for closer co-operation, both in planning and training, while the R.A.F. were little impressed by these appeals because their intended strategy was not greatly concerned with naval and military operations. Their Coastal Command, efficient but deplorably small, knew exactly what was required of it. Their main forces consisted of Bomber Command, whose destined job was to bomb Germany, and Fighter Command, whose job was the air defence of Britain, which did not include any part of the waters round the British Isles.

Of recent years R.A.F. writers, realizing now how urgently we have needed it, have written much about the need for close co-operation of the three Services, but actions speak louder than words. There seems little doubt that the air view of independent bombing operations received the approval of the War Cabinet, leading to the inception of a vast programme of long-range bomber construction to the inevitable detriment of urgent Army and Navy requirements. Thus in May and June, 1942, we were able to send thousand-bomber raids to Germany, while in July, 1942, Air Chief Marshal Sir A. Harris, no doubt with Government approval, broadcast to Germany saying that British and American bombers would scourge the Reich from end to end and make it impossible for them to continue the War.

Yet up to this time the achievements of our Army and Navy, through no lack of effort on their part, had been in some directions regrettably small. Our Eighth Army had been twice driven back out of Libya and Rommel's army, though not exceeding 100,000 men, was hammering at the gates of Egypt. Ultimately our air superiority became such that the Eighth Army could be given enough to achieve decisive victory. But even to-day the Navy, strained with three and a half years of superhuman effort, is in bitter need of the only help it can usefully be given : help from aircraft in large numbers, capable of the longest ocean voyages, with crews specially trained in anti-U-boat work.

The problem is urgent because all the evidence suggests that our losses from U-boats in 1942 have been huge and are quite likely to increase in 1943. Vice-Admiral Nelles, for example, recently said in Canada that the number of enemy U-boats available for operations is increasing by not less than ten per month.

I fully agree with Sir Robert Brooke-Popham (in his article, " The British War Effort—The Role of Air Power ") that our fighters in the Battle of Britain did a splendid job. They were being used, independently at that time, for an entirely legitimate and important duty. I cannot agree with his suggestion, which seemed to me unsupported by proof, that my article in the November JOURNAL displayed " the influence of the

one-Service mind," because I have spent years trying to persuade various authorities to arrange the real co-ordination of the three Services. I regret that Sir Robert thinks my views would "militate against the most effective use of air power and thus lead to unnecessary lengthening of the War." I have, alas, the same feeling that the War has been unnecessarily lengthened and may be lengthened still more until air power is used in the best way. That is my sole reason for writing this letter. Unfortunately, I fear that discussions in print can bring us little nearer to a solution.

If it should prove possible to organize a round-table conference of Admirals, Generals and Air Marshals, I believe it would be found that the former are fully as air-minded as the Air Marshals, that their differences of opinion are by no means insuperable, and that agreement between them would be of infinite value to the Country.

R. P. ERNLE-ERLE-DRAX,
Admiral.

SIR,—There is one aspect of how the best use can be made of the air forces which we have or can ever hope to have available, which seems to have been overlooked in the controversy about how they shall be controlled, and it is an important and practical one. Those who claim that for the most effective and economical use of air forces, both strategical and tactical, there should be a centralized control, ignore the need for specialization.

There has always been a tendency on the part of air enthusiasts to regard flying as the end all and be all and to overlook the real point, which is the *uses* to which aircraft are to be put. Alternatively, but with the same result, there are those who claim that the Royal Air Force can be a jack-of-all-trades.

Experience in the last war and ever since has shown that the use of aircraft for air fighting and long-distance bombing; for co-operation with ships at sea; and with troops on land, call for separate and very specialist training. Moreover, the design of aircraft must also be suited to the tasks on which they are to be employed; *e.g.*, for constructional as well as aeronautical reasons, aircraft which are suitable for operating from land aerodromes may be quite unsuitable for working from carriers.

In short, if the best use is to be made of allied aircraft production, which is really the limiting factor, there should be specialized control of design and training so that the best results are achieved in the employment of air forces in the three separate categories.

"NAVARINO."

CHELTENHAM COLLEGE FUND FOR SONS OF ENGINEERS

SIR,—A fund has been registered under the War Charities Act, 1940, for educating at Cheltenham College the sons of engineers who lose their lives as a direct result of the War, whether they are in the Services or are civilians. In the past similar steps have been taken to provide for the sons of doctors, clergy, and other professional classes, but so far as I know little has been done for the sons of engineers.

This is an engineers' war. All the fighting units depend for their efficiency on the engineer, both as part of their own strength and in the factories, supply services, transport, and mines. I can think of no better way of showing our gratitude to all engineers than by giving generously to this war charity. I am therefore writing to ask you to bring this fund to the notice of your readers. Donations, large or small, should be sent to me at the registered address of the fund, "The College, Cheltenham," cheques being made out to "The Cheltenham College Fund for Sons of Engineers."

J. G. DILL,
Field-Marshal.

British Joint Staff Mission,
Offices of the Combined Chiefs of Staff,
Washington.

2nd November, 1942.

GENERAL SERVICE NOTES

DECORATIONS.—It was announced on 16th January that the King has approved that the Conspicuous Gallantry Medal shall be available for airmen for gallantry in air operations against the enemy. The award will be superior to the Distinguished Flying Medal.

The King has also approved that the Distinguished Conduct Medal shall be available for airmen for gallantry in action on the ground; and that the Conspicuous Gallantry Medal, as well as the Distinguished Flying Cross, Air Force Cross, Distinguished Flying Medal and Air Force Medal, shall be available for members of the Army engaged on flying duties, such as glider pilots, observers, etc.

The Conspicuous Gallantry Medal has hitherto been a naval award, though available for non-commissioned officers and men of the Royal Air Force when serving with the Fleet. It will now be available, as a flying award, for warrant officers, non-commissioned officers, and men of the Royal Air Force wherever serving, and also for corresponding ranks in the Army.

When awarded to members of the Navy the Conspicuous Gallantry Medal has a white ribbon with dark blue marginal stripes. When awarded to members of the Royal Air Force and the Army, the ribbon will be light blue with dark blue marginal stripes. The ribbon of the Distinguished Conduct Medal will be the same for the Royal Air Force as for the Army. The Military Medal will be available for members of the Royal Air Force as hitherto.

LOCATION OF THE "BISMARCK."—In answer to a question asked after the lecture on "The Work of the Fleet Air Arm during the War" (published in the JOURNAL of November, 1942), the lecturer stated that it was a naval aircraft which first reported the "Bismarck" putting to sea for the last time. A more detailed account of the circumstances in which this report was made has since been received from an authoritative source and it is desirable that, in the interests of historical accuracy, it should be given.

The facts were as follows:—

(*a*) The "Bismarck" was first located by a Coastal Command Reconnaissance aircraft when anchored in Bergen.

(*b*) The weather then deteriorated and for forty-eight hours the whereabouts of the ship was not definitely known.

(*c*) It was decided to clear up the situation and a naval aircraft was sent on reconnaissance from a naval station in the North—with the concurrence of the Air Officer Commanding and Senior Naval Officer.

(*d*) The aircraft was a Maryland, and by good navigation the entrance to Bergen Fjord was located and a thorough reconnaissance was made of the fjord, but no German naval units were observed.

(*e*) A negative report was made and the Maryland then returned to a R.A.F. station where an amplifying report was given.

NAVY NOTES

GREAT BRITAIN

H.M. The King

The King, attended by Captain Harold Campbell, R.N., and Commander Colin Buist, R.N., visited Naval Establishments in the South of England on 30th October.

Appointments

The following were announced by the Admiralty on 22nd January :—

Fifth Sea Lord.—The post of Fifth Sea Lord, which had been in abeyance since Rear-Admiral A. L. St. G. Lyster, C.B., C.V.O., C.B.E., D.S.O., was appointed to a sea-going command, has now been filled by the appointment of Rear-Admiral D. W.Boyd, C.B.E., D.S.C., who assumes the additional title of Chief of Naval Air Equipment. The present Chief of Naval Air Services, Admiral Sir Frederic C. Dreyer, G.B.E., K.C.B., becomes Deputy Chief of Naval Air Equipment, and the post of Assistant Chief of Naval Air Services, held by Rear-Admiral R. Bell Davies, V.C., C.B., D.S.O., A.F.C., is abolished.

A.C.N.S. (Air).—The naval staff duties which were previously discharged by the Fifth Sea Lord will in future be performed, under the Chief of the Naval Staff, by an Assistant Chief of the Naval Staff (Air). Captain R. H. Portal, D.S.C., R.N., has been appointed to this post with the rank of Acting Rear-Admiral.

In addition to his duties in respect of naval air material and equipment, the new Fifth Sea Lord will advise on matters relating to personnel of the Fleet Air Arm and their conditions of service.

The following were announced by the Admiralty on 25th January :—

The King has approved the appointment of Rear-Admiral John H. Edelsten, C.B.E., to be a Lord Commissioner of the Admiralty and an Assistant Chief of Naval Staff, in succession to Vice-Admiral Edward L. S. King, C.B., M.V.O., to date 12th December, 1942.

The appointment has also been approved of Vice-Admiral Edward L. S. King to be Principal Naval Liaison Officer to Allied Navies, in succession to Admiral Sir Gerald C. Dickens, K.C.V.O., C.B., C.M.G., to date 23rd January, 1943.

The following were announced by the Admiralty on 9th November :—

Expeditionary Force.—Admiral Sir Andrew B. Cunningham, G.C.B., D.S.O., to be Naval Commander-in-Chief, Expeditionary Force.

B.A.D., Washington.—Admiral Sir Percy L. H. Noble, K.C.B., C.V.O., to be Head of the British Admiralty Delegation in Washington, in succession to Admiral Cunningham.

Western Approaches.—Admiral Sir Max K. Horton, K.C.B., D.S.O., to be Commander-in-Chief, Western Approaches, in succession to Admiral Noble.

Flag Officer (Submarines).—Captain C. B. Barry, D.S.O., in the acting rank of Rear-Admiral, to be Flag Officer, Submarines, in succession to Admiral Horton.

The flag of Admiral Sir Max Horton was hoisted at Liverpool on 19th November, and the flag of Admiral Sir Percy Noble was struck at sunset on that day. Sir Percy arrived at Montreal on 11th December on his way to Washington.

The following were announced by the Admiralty on 30th October :—

Naval Secretary.—The King has approved the appointment of Rear-Admiral Frederick H. G. Dalrymple-Hamilton, C.B., to be Naval Secretary to the First Lord of the Admiralty, in succession to Rear-Admiral A. M. Peters, D.S.C., to date 31st October.

Sea Commands.—The following Flag Officers have recently been given sea commands :—

Rear-Admiral Arthur L. St. G. Lyster, C.B., C.V.O., C.B.E., D.S.O.

Rear-Admiral Cecil H. J. Harcourt, C.B.E.

SHORE APPOINTMENTS.—The following Flag Officers have been given shore appointments :—

Vice-Admiral Sir Henry D. Pridham-Wippell, K.C.B., C.V.O.

Rear-Admiral John G. Crace, C.B.

Rear-Admiral Harold T. Baillie-Grohman, C.B., D.S.O., O.B.E.

Rear-Admiral Charles E. Morgan, D.S.O.

The following was announced by the Admiralty on 13th January :—

CHIEF OF NAVAL INFORMATION.—The new post of Chief of Naval Information has been instituted. He will be responsible for planning and co-ordinating all forms of naval publicity. The Press Division will continue to be the channel for all Admiralty publicity questions with other Government Departments and the Press. Admiral Sir William James, K.C.B., has been appointed Chief of Naval Information.

NEWFOUNDLAND.—It was announced on 25th October that the King has approved the extension for a further year from January, 1943, of the term of office of Vice-Admiral Sir Humphrey Walwyn, K.C.S.I., K.C.M.G., C.B., D.S.O., as Governor and Commander-in-Chief of Newfoundland.

ASSISTANT CONTROLLERS, ADMIRALTY.—It was announced on 4th December that Commander C. F. Goodeve, D.Sc., F.R.S., R.N.V.R., has been appointed to the post of Assistant Controller (Research and Development) in the Admiralty; and that Sir Stanley V. Goodall, K.C.B., O.B.E., Director of Naval Construction, has been given the additional appointment of Assistant Controller of Warship Production.

Commander Goodeve will be responsible for the co-ordination of research and development in the departments of the Controller of the Navy, and for ensuring that scientific opinion is adequately represented in those departments and that due weight is given to it.

Sir Stanley Goodall will remain the principal technical adviser to the Board of Admiralty on the design of warships and other vessels for the Royal Navy. In his capacity as Assistant Controller, he will be responsible under the Controller of the Navy for the production of warships and their completion with all appropriate supplies, and for the necessary co-ordination to achieve the fastest possible results with the greatest economy of effort.

PROMOTIONS

The following were announced on 21st January :—

The King has approved the promotion of Admiral Sir Andrew Browne Cunningham, Bt., G.C.B., D.S.O., to be Admiral of the Fleet, to date 21st January, in the vacancy caused by the completion of five years in the rank of Admiral of the Fleet by the Earl of Cork and Orrery, G.C.B., G.C.V.O.

The following promotions of Flag Officers are also announced :—

Vice-Admiral Sir Guy Charles Cecil Royle, K.C.B,, C.M.G., to be Admiral in H.M. Fleet.

Vice-Admiral (Acting Admiral) Sir John Cronyn Tovey, K.C.B., K.B.E., D.S.O., to be Admiral in H.M. Fleet.

Vice-Admiral Sir G. Frederick B. Edward-Collins, K.C.B., K.C.V.O., to be Admiral in H.M. Fleet.

Rear-Admiral Arthur L. St. George Lyster, C.B., C.V.O., C.B.E., D.S.O., to be Vice-Admiral in H.M. Fleet.

Rear-Admiral Sir Harold Martin Burrough, K.B.E., C.B., D.S.O., to be Vice-Admiral in H.M. Fleet.

The following promotions to the rank of Rear-Admiral have been approved and were announced in the Press on 13th January :—

Captain Llewellyn V. Morgan, C.B.E., M.V.O., D.S.C., A.D.C.
Captain Claud B. Barry, D.S.O., A.D.C. (Acting Rear-Admiral).
Captain Charles S. Daniel, C.B.E., D.S.O. (Acting Rear-Admiral).
Captain John M. Mansfield, D.S.C. (Commodore, 2nd Class).
Captain Philip J. Mack, D.S.O.
Captain Thomas H. Troubridge, D.S.O.

In the *London Gazette* on 12th January it was announced that Surgeon Captain Herbert R. B. Hull had been promoted to be Surgeon Rear-Admiral, to date 12th January, 1943.

Honours and Awards

Victoria Cross

On 12th January, it was announced that the King had approved the award of the Victoria Cross for valour in the defence of a convoy to Captain R. St. V. Sherbrooke, D.S.O., R.N. Captain Sherbrooke, in H.M.S. " Onslow," was the senior officer in command of the destroyers escorting an important convoy bound for North Russia. On the morning of 31st December, off the North Cape, he made contact with a greatly superior enemy force, which was attempting to destroy the convoy. Four times the enemy tried to attack the convoy, but was forced each time to withdraw behind a smoke screen to avoid the threat of our torpedoes, and each time Captain Sherbrooke pursued him and drove him outside gun range of the convoy and towards our covering forces. These engagements lasted about two hours, but after the first forty minutes H.M.S. " Onslow " was hit, and Captain Sherbrooke was seriously wounded in the face and lost the use of one eye. Nevertheless he continued to direct the ships under his command until further hits on his own ship compelled him to disengage, but not until he was satisfied that the next senior officer had assumed control. It was only then that he agreed to leave the bridge for medical attention, and until the convoy was out of danger he insisted on receiving all reports of the action. His courage, his fortitude, and his cool and prompt decisions inspired all around him. By his leadership and example the convoy was saved from damage, and was brought safely to its destination.

George Cross

On 17th November, it was announced that the King had approved the award of the George Cross to Lieutenant Dennis Arthur Copperwheat, R.N., H.M.S. " Penelope," for great bravery at Malta. During heavy air raids on Valetta, Lieutenant Copperwheat was sent in charge of a party of men from the " Penelope " to scuttle a merchantman, laden with ammunition, which was burning in the harbour. Owing to the fires, it was impossible to place scuttling charges in the holds, and they had to be slung over the side of the ship. As they worked, ammunition was exploding all round them from burning stowages on deck. The ship lay forty yards from the shore, to which the electric cables for firing the scuttling charges could only just reach. Lieutenant Copperwheat sent his working party to shelter, and stayed himself to fire the charges from a position where he was exposed to the full blast of the explosion, which lifted him bodily. But for his brave action the ship must have blown up, and grave damage would have been done to the harbour. Moreover, much of the ammunition was saved, and some very heavy bombs, part of the cargo, were soon afterwards dropped in Italy.

On 4th November, it was announced that the King had approved the award of the George Cross to Lieutenant John Stuart Mould, G.M., R.A.N.V.R., for great gallantry and undaunted devotion to duty.

New Year Honours

The following were included in the New Year Honours conferred by the King :—

Baron.—Admiral of the Fleet Sir Roger J. B. Keyes, Bt., G.C.B., K.C.V.O., C.M.G., D.S.O., LL.D., D.C.L.(Oxon), M.P.

K.C.B.—Vice-Admiral Lionel V. Wells, C.B., Vice-Admiral William E. C. Tait, C.B., Vice-Admiral William F. Wake-Walker, C.B., Vice-Admiral Stuart S. Bonham-Carter, C.B.

C.B.—Rear-Admiral C. E. B. Simeon, Rear-Admiral F. H. Pegram, Rear-Admiral L. H. K. Hamilton, Acting Rear-Admiral G. H. Creswell, Engineer Rear-Admiral G. G. P. Burt, Paymaster Rear-Admiral W. E. H. Jolly, Colonel Second Commandant (Bt. Col., Act. Major-Gen.) R. H. Campbell, R.M.

C.M.G.—Captain A. Hillgarth, R.N. (Retired), Naval Attaché, H. M. Embassy, Madrid; Commander J. H. Carrow, R.N. (Retired), Senior Resident, Nigeria.

K.B.E.—Admiral Arthur J. Davies, C.B. (Retired), Vice-Admiral Malcolm L. Goldsmith, D.S.O. (Retired), Vice-Admiral James A. G. Troup, C.B. (Retired).

C.B.E.—Engineer Rear-Admiral R. D. Nelson (Retired), Captain G. E. Creasy, R.N., Captain A. Day, R.N., Captain Q. D. Graham, R.N., Captain W. B. Hynes, R.N. (Retired), Captain G. B. Middleton, R.N., Captain D. B. O'Connell, R.N. (Retired), Captain C. M. R. Schwerdt, R.N. (Retired), Captain (Act. Commodore, 2nd Cl.) R. Gill, R.N.R. (Retired), Engineer Captain A. L. Thomson, R.N. (Retired), Paymaster Captain E. H. Wethey, R.N. (Retired), Lieutenant-Colonel (Act. Col. Comdt., Temp. Brig.) W. B. F. Lukis, R.M., Major (Act. Col.) G. F. Haszard, R.M. (Retired), Miss E. M. Goodenough, Deputy Director, W.R.N.S.

Order of the Bath

On 1st December, it was announced that Rear-Admiral R. L. Burnett, O.B.E., had been appointed C.B. for daring, skill, and resolution in taking a convoy to North Russia in the face of sustained and relentless attacks by enemy aircraft and submarines.

Order of the British Empire

On 13th October, Captain (Commodore, 2nd Class) J. C. K. Dowding, D.S.O., R.D., R.N.R., was appointed C.B.E. for bravery and resolution as Commodore of a North Russian Convoy.

On 8th December, Rear-Admiral E. K. Boddam-Whetham, D.S.O. (Retired), was appointed C.B.E. for bravery and resolution as Commodore of a North Russian Convoy.

On 12th January, Commander (Acting Captain) C. L. Howe, O.B.E., R.N., was appointed C.B.E. for outstanding services to the Eighth Army in Egypt.

PERSONNEL

JUNIOR OFFICERS' PAY.—In the House of Commons on 26th November, Sir John Anderson, Lord President of the Council, announced a number of changes in the pay and allowances of members of the forces. The chief points of this statement were :—

The basic rates of pay of acting Sub-Lieutenants, Sub-Lieutenants and Lieutenants in the Executive Branch of the Royal Navy, will be brought into line with the rates paid to the corresponding ranks of Second Lieutenant, Lieutenant and Captain in the Army. Corresponding improvements will be made in the rates of pay of officers in the Engineering, Accountant and Royal Marine Branches of the Navy.

Officers' outfit allowances will be increased by £10, and the additional allowances to officers for tropical outfit will be raised from £5 to £10.

Children's allowances will be payable to the wives of soldiers, sailors and airmen at the appropriate rates three months before the expected date of the birth of a child, instead of from the date of birth.

The war service grants machinery has been reviewed, and the "minimum unit standard" will be raised from 16s. to 18s., each child under school-leaving age to be counted, as hitherto, as a half-unit.

UNIVERSITY COURSES.—In November, it was announced that with a view to accelerating the provision of the large number of officers needed as the Navy expanded,

the Admiralty would institute short university courses, starting in January, at Oxford, Cambridge, Liverpool, Cardiff, Edinburgh and Glasgow. Candidates, who must be between 17½ and 18½ on the 15th of the month in which their course starts, will be selected by a board from those recommended by the headmaster of the school at which they are, or have been, attending. Those already enrolled under the "Y" scheme, and those who have already been interviewed when candidates for Special Entry and, though unsuccessful, were awarded 150 marks or more at their interview, will not be interviewed again. A medical examination must be passed. Selected candidates will be given a course of six months, during which the cost of tuition, board, lodging, and medical attention will be borne by the Admiralty. Those who reach the necessary standard will be recommended for commissions, and their subsequent period of probationary training will be shorter than that for ordinary entrants.

"Y" Entry Scheme.—Certain extensions of the "Y" scheme of entry were announced by the Admiralty early in January. Young men can now enrol from the age of 16½ instead of 17. They will not be liable to be called up for service before they are 18, but volunteers for ordinary seaman or Royal Marine may elect to be called up at 17½ if they so desire. It will no longer be essential to have the school certificate to volunteer for training as a naval air pilot. Members of an approved pre-entry training corps can be accepted without the school certificate, provided they are recommended by their commanding officer. To meet the case of candidates who, while otherwise suitable for training as naval air pilots, are not quite up to the educational standards required, a special educational course in the Service itself is being introduced to enable them to start their normal service training on level terms with other candidates. All candidates for naval air pilot who successfully complete their training will have equal opportunities of obtaining a Commission; those who do not wish to take a Commission or who do not reach the standard required will now be able to serve as Petty Officer Pilots. These new regulations are particularly designed to encourage entry by cadets of the Sea Cadet Corps and the Air Training Corps who have taken full advantage of the opportunities for training themselves provided by these corps. Prospective candidates should apply as soon as possible at a Combined Recruiting Centre.

Women's Royal Naval Service

On 3rd November the Duchess of Kent, Commandant, inspected the W.R.N.S. Central Training Depot at Mill Hill, and subsequently visited the London quarters of the Service in England's Lane. On 12th November, Her Royal Highness visited the Admiralty, inspected on the Horse Guards Parade a contingent of W.R.N.S. motor cycle despatch riders and drivers, and afterwards visited the Westminster headquarters of the Service. During a visit to Portsmouth on 3rd December, the Duchess was ferried across the harbour in a launch manned by members of the W.R.N.S., and she took luncheon in H.M.S. "Victory" with Admiral Sir Charles Little, Commander-in-Chief. On 12th January, Her Royal Highness visited the headquarters of the Flag Officer in Charge, London, and inspected personnel of the W.R.N.S.

In the House of Commons on 2nd December, the Civil Lord of the Admiralty announced increases in pay to junior officers of the W.R.N.S. corresponding to those recently granted to Sub-Lieutenants, R.N., with effect from 1st October. Mobile and immobile Second Officers received an increase of £25 a year, and mobile and immobile Third Officers an increase of £20 a year. The opportunity had also been taken to remedy an anomaly in the rate of pay of immobile First Officers, who had been granted an increase of £50 a year.

In future, any woman called up under the National Service Acts who enters the W.R.N.S. will not be allowed to withdraw during the fortnight probationary period, and will be required to undertake whatever service is allotted to her. Formerly, a woman conscribed for national service shared the privilege of the volunteer of withdrawing during that period if she felt she could not adapt herself to service life, or if

it was not possible to employ her in the category of her choice. The Admiralty decision brings the W.R.N.S. into line with the other Services in this respect.

The headquarters of the W.R.N.S. was moved recently from Great Smith Street, Westminster, to Queen Anne's Mansions, St. James's Park, S.W.1.

Royal Marines

On 10th January, the Admiralty announced the appointment of Major-General T. L. Hunton to be Adjutant-General, Royal Marines, in succession to General Sir Alan Bourne, to date 26th January, 1943.

DOMINIONS AND COLONIES

AUSTRALIA

H.M.A.S. "Canberra."—It was announced in November that Captain John A. Collins, R.A.N., who formerly commanded H.M.A.S. "Sydney," and was awarded the C.B. for the action in which that ship destroyed the Italian cruiser "Bartolomeo Colleoni" in 1940, had been appointed to command the cruiser "Canberra." The latter ship has hitherto been known as the "Shropshire" in the Royal Navy. Captain Collins has until recently been doing special work in Australia with the acting rank of Commodore.

H.M.A.S. "Arunta."—On 26th November it was announced that the Tribal class destroyer "Arunta," the largest Australian-built naval vessel to be commissioned for 12 years, had passed her speed trials. She bears the name of one of the most virile of the Central Australian aboriginal tribes.

CANADA

Corvettes in North Africa.—On 24th November, Mr. Angus MacDonald, the Canadian Navy Minister, stated that seventeen Canadian corvettes had taken part in the Allied landings in North Africa, and remained on duty in those waters. In addition, men of the R.C.N. manned some of the landing craft. Five Canadian warships had also co-operated with the American Navy in the action off the Aleutian Islands and in other places near the coast of Alaska.

Shipbuilding.—On 9th December, Mr. Howe, Minister of Munitions, stated that since the War began, almost three hundred warships and about a thousand smaller craft had been launched from Canadian yards. More than seventy cargo vessels had also been delivered from them, one in eighty-eight days after the laying of the keel.

INDIA

New Torpedo School.—The new torpedo school for the Royal Indian Navy was formally opened at Bombay in December, within four months of the laying of the foundation stone, by the Maharani of Nawanagar. It will provide instruction in the use and maintenance of torpedoes and mines, the handling of depth charges, and the operation and maintenance of ships' electrical equipment. The students are specially chosen from Indian warships.

ARMY NOTES

His Majesty the King

The King visited troops in the South-Eastern Command on 18th December, 1942, and troops in the Eastern Command on 25th January, 1943.

The King has been pleased to approve the following appointments :—

To be Aide-de-Camp to the King.—Colonel R. J. Brett, D.S.O. (15th September, 1942).

To be Colonels Commandant.—Of the Royal Army Service Corps, Major-General M. S. Brander, C.B., O.B.E., retired pay (2nd November, 1942) ; of the Royal Corps of Signals, Lieut.-General Sir Colville Wemyss, K.B.E., C.B., D.S.O., M.C. (30th November, 1942) ; of the Glider Pilot Regiment, Army Air Corps, General Sir Alan F. Brooke, G.C.B., D.S.O. (12th November, 1942) ; of the Parachute Regiment, Army Air Corps, Field-Marshal Sir John G. Dill, G.C.B., C.M.G., D.S.O. (12th November, 1942) ; of the Royal Artillery, Major-General A. W. Bartholomew, C.B., C.M.G., D.S.O., retired pay (19th October, 1942) ; of the Royal Army Ordnance Corps, Major-General K. M. Body, C.B., C.M.G., O.B.E. (19th December, 1942) ; of the Royal Electrical and Mechanical Engineers, General Sir Walter Venning, G.C.B., C.B.E., M.C., retired pay, Major-General Sir Basil Hill, K.B.E., C.B., D.S.O., retired pay, and Major-General A. R. Valon, O.B.E., M.C. (all 19th December, 1942).

To be Regimental Colonels.—Of the 2/6th Rajputana Rifles, Major-General H. H. Rich, Indian Army (6th November, 1942) ; of the Royal Fusiliers, General Sir Reginald S. May, K.C.B., K.B.E., C.M.G., D.S.O., retired pay (21st October, 1942) ; of the Royal Army Medical Corps, Major-General J. W. West, C.B., C.M.G., C.B.E., retired pay (23rd November, 1942).

Honours and Awards.

Victoria Cross.—The King has approved the award of the Victoria Cross to—

(*a*) Major (temporary Lieut.-Colonel) V. B. Turner, The Rifle Brigade—in recognition of his most conspicuous gallantry and devotion to duty on 27th October, 1942, in the Western Desert.

(*b*) Corporal J. A. French, Australian Military Forces (posthumous)—in recognition of outstanding gallantry and self-sacrifice at Milne Bay, New Guinea, on 4th September, 1942.

(*c*) Sergeant W. H. Kibby, Australian Military Forces (posthumous)—in recognition of outstanding courage, tenacity of purpose and devotion to duty near El Alamein on 23rd October, 1942.

(*d*) Private P. E. Gratwick, Australian Military Forces (posthumous)—in recognition of most conspicuous gallantry and determination near El Alamein on the night of 25th October, 1942.

George Cross.—The King has approved the award of the George Cross to Lieutenant W. Foster, 7th Battalion, Wiltshire Home Guard (posthumous)—for most gallant self-sacrifice in throwing himself on a live bomb, thus saving the lives of his comrades nearby.

The following awards were announced on 11th November, 1942, for distinguished services in the field :—

G.C.B.—General the Hon. Sir Harold R. L. G. Alexander, K.C.B., C.S.I., D.S.O., M.C.

K.C.B.—Lieut.-General B. L. Montgomery, C.B., D.S.O., who was also promoted to General.

On 16th November the following award was announced :—

G.C.B.—General Sir Alan F. Brooke, K.C.B., D.S.O. (Chief of the Imperial General Staff).

On 24th November the following awards were announced " in recognition of the supreme gallantry and magnificent achievements of British and Dominion troops and their commanders in the present operations in the Middle East " :—

K.C.B.—Lieut.-General Sir Bernard C. Freyberg, V.C., K.B.E., C.B., C.M.G., D.S.O., General Officer Commanding New Zealand Expeditionary Force in the Middle East; Lieut.-General Sir Leslie J. Morshead, K.B.E., C.M.G., D.S.O., E.D., General Officer Commanding Australian Forces in the Middle East.

C.B.—Lieut.-General (acting) Sir Oliver W. H. Leese, Bt., C.B.E., D.S.O.; Major-General D. H. Pienaar, D.S.O., South African Forces.

The following awards were included in the New Year Honours list of 1st January, 1943 :—

K.C.B.—Lieut.-General H. E. Franklyn, C.B., D.S.O., M.C.; Lieut.-General T. R. Eastwood, C.B., D.S.O., M.C.; Lieut.-General Sir George N. Cory, K.B.E., C.B., D.S.O.; Colonel (Hon. Brig.-General) Sir Edward T. Le Marchant, Bt., C.B., C.B.E.

C.B.—Lieut.-General Sir Noel M. de la P. Beresford-Peirse, K.B.E., D.S.O.; Major-General R. C. Money, M.C.; Major-General E. G. Miles, D.S.O., M.C.; Major-General C. J. S. King, C.B.E.; Major-General J. A. Manifold, D.S.O., M.B., K.H.P.; Major-General R. H. Lorie, C.B.E.; Major-General I. S. O. Playfair, D.S.O., M.C.; Major-General J. L. I. Hawkesworth, C.B.E.; Major-General J. E. Utterson-Kelso, D.S.O., O.B.E., M.C.; Major-General L. H. Williams, M.C.; Major-General (acting Lieut.-General) A. F. P. Christison, M.C.; Major-General H. Willans, C.B.E., D.S.O., M.C., T.D.; Colonel (temporary Major-General) L. G. Phillips, C.B.E., M.C.; Colonel (temporary Major-General) F. A. M. Browning, D.S.O.; Colonel (temporary Major-General) R. F. E. Whittaker, O.B.E., T.D.; Major-General G. L. S. Hawkins, M.C., Indian Army; Major-General C. R. C. Lane, M.C., Indian Army; Major-General G. M. Fitzgerald, M.C., Indian Army; Colonel (temporary Brigadier) F. C. de Butts, D.S.O., M.C., Indian Army; Lieut.-General V. A. H. Sturdee, C.B.E., D.S.O., Australian Military Forces.

K.C.S.I.—Lieut.-General C. D. Noyes, C.B., C.I.E., M.C., Indian Army.

K.C.M.G.—Colonel (local Brigadier) S. G. Menzies, C.B., D.S.O., M.C.

K.C.I.E.—Lieut.-General C. A. Bird, C.B., D.S.O.

G.B.E.—Lieut.-General Sir William Platt, K.C.B., D.S.O.

K.B.E.—Lieut.-General D. F. Anderson, C.B., C.M.G., D.S.O.; Hon. Major-General H. L. Tidy, F.R.C.P.

Promotions and Appointments

The following promotions have been announced :—

Field-Marshals.—The following Generals to be Field-Marshals :—The Viscount Gort, V.C., G.C.B., C.B.E., D.S.O., M.V.O., M.C., A.D.C. General; Sir Archibald P. Wavell, G.C.B., C.M.G., M.C., A.D.C. General (1st January, 1943).

Generals.—The following Lieut.-Generals to be Generals :—Sir Thomas S. Riddell-Webster, K.C.B., D.S.O. (1st November, 1942); C. D. Noyes, C.B., C.I.E., M.C., Indian Army (24th October, 1942).

The following Lieut.-General (acting General) to be temporary General :—Sir Bernard C. T. Paget, K.C.B., D.S.O., M.C. (25th December, 1942).

Lieut.-Generals.—The following Major-Generals (temporary or acting Lieut.-Generals) to be Lieut.-Generals :—H. C. Loyd, C.B., D.S.O., M.C. (1st November, 1942); Sir Noel M. de la P. Beresford-Peirse, K.B.E., D.S.O. (17th November, 1942);

A. G. O. M. Mayne, C.B., C.B.E., D.S.O., Indian Army (24th October, 1942); W. H. G. Baker, C.B., D.S.O., O.B.E., Indian Army (16th August, 1942).

The following Major-General to be Lieut.-General :—Sir Hastings L. Ismay, K.C.B., D.S.O., Indian Army (16th August, 1942).

The following Major-General to be temporary Lieut.-General :—N. M. S. Irwin, C.B., D.S.O., M.C. (23rd November, 1942).

The following Major-Generals (acting Lieut.-Generals) to be temporary Lieut.-Generals :—A. E. Grasett, C.B., D.S.O., M.C. (7th November, 1942); E. L. Morris, C.B., O.B.E., M.C. (1st December, 1942); A. E. Nye, C.B., M.C. (5th December, 1942); J. A. H. Gammel, C.B., D.S.O., M.C. (25th December, 1942); G. N. Macready, C.B., C.M.G., D.S.O., O.B.E., M.C. (19th December, 1942).

The following Colonels (temporary Major-Generals) to be acting Lieut.-Generals :—M. G. N. Stopford, D.S.O., M.C. (11th November, 1942); M. C. Dempsey, D.S.O., M.C. (12th December, 1942).

Major-Generals.—The following Colonels (acting Lieut.-Generals) to be Major-Generals: F. E. Morgan (12th November, 1942, with seniority 13th November, 1941); M. G. N. Stopford, D.S.O., M.C. (12th November, 1942, with seniority 14th November, 1941); G. A. P. Scoones, C.S.I., D.S.O., O.B.E., M.C. (17th September, 1942); J. T. Crocker, C.B.E., D.S.O., M.C. (4th December, 1942, with seniority 16th November, 1941).

The following Colonels (temporary Major-Generals) to be Major-Generals :—J. N. Kennedy, C.B., M.C. (1st November, 1942, with seniority 12th November, 1941); H. H. Rich, Indian Army (16th August, 1942); C. A. E. Cadell, C.B.E., M.C. (12th November, 1942, with seniority 27th October, 1940); E. F. Tickell, C.B.E., M.C. (10th November, 1942, with seniority 30th September, 1942); R. M. M. Lockhart, C.I.E., M.C. (24th October, 1942).

The following Colonels (acting Major-Generals) to be Major-Generals :—G. I. Thomas, D.S.O., M.C. (11th November, 1942, with seniority 25th October, 1941); F. G. Wrisberg, C.B.E. (17th November, 1942, with seniority 15th November, 1941).

The following Colonels (acting Major-Generals) to be temporary Major-Generals :—Sir Colin A. Jardine, Bt., C.B., D.S.O., M.C. (22nd October, 1942); W. G. Michelmore, D.S.O., M.C., T.D., A.D.C., T.A. (30th October, 1942); F. A. M. Browning, D.S.O. (3rd November, 1942); H. A. Freeman-Attwood, O.B.E., M.C. (3rd November, 1942); C. H. Gairdner, C.B.E. (11th November, 1942); G. Lammie, C.B.E., M.C. (17th November, 1942); A. A. B. Dowler (15th November, 1942); A. Galloway, C.B.E., D.S.O., M.C. (27th November, 1942); W. J. Eldridge, C.B.E., D.S.O., M.C. (1st December, 1942); H. J. Hayman-Joyce, D.S.O. (7th December, 1942); F. W. L. Bissett, C.B.E., D.S.O., M.C.; J. A. Campbell, D.S.O.; L. H. Cox, C.B.E., M.C.; L. C. Grant, C.B.E., D.S.O.; H. T. MacMullen, C.B.E., M.C.; R. M. Wootten, C.B., M.C. (all 15th December, 1942); C. le B. Goldney, C.B.E., M.C. (22nd December, 1942); C. G. Phillips, D.S.O., M.C. (29th December, 1942).

The following to be temporary Major-Generals :—Colonel (acting Lieut.-General) H. Lumsden, D.S.O., M.C. (15th October, 1942); War Subs. Lieut.-Colonel (acting Major-General) C. F. Keightly, O.B.E. (27th December, 1942).

The following Colonels to be temporary Major-Generals :—W. E. Clutterbuck, M.C. (18th November, 1942); H. E. Roome, C.B.E., M.C. (21st November, 1942); K. F. D. Gattie, D.S.O., M.C. (22nd November, 1942); A. I. Macdougall, D.S.O., M.C., A.D.C. (24th November, 1942).

The following Colonels (temporary Brigadiers) to be acting Major-Generals :—R. H. Studdert, D.S.O., M.C. (12th September, 1942); G. E. Grimsdale (6th November, 1942); R. K. Ross, D.S.O., M.C. (12th September, 1942); G. St. G. Robinson, D.S.O., M.C. (11th November, 1942); C. A. West, D.S.O., M.C. (4th December, 1942)

K. N. Crawford, M.C. (12th December, 1942); C. McV. Gubbins, D.S.O., M.C. (21st December, 1942); J. A. Aizlewood, M.C. (12th December, 1942); J. A. Sinclair, O.B.E. (15th January, 1943).

The following Lieut.-Colonels (temporary Brigadiers) to be acting Major-Generals :—A. H. S. Adair, D.S.O., M.C., Grenadier Guards (21st September, 1942); J. C. D'Arcy, C.B.E., M.C., Royal Artillery (9th September, 1942); C. M. Christie, M.C., Royal Artillery (12th December, 1942).

The following to be acting Major-Generals :—Lieut.-Colonel (temporary Colonel) D. A. L. Wade, O.B.E., M.C., Royal Corps of Signals (4th October, 1942); War Subs. Lieut.-Colonel J. A. Baillon, O.B.E., M.C., South Staffordshire Regiment (3rd September, 1942); War Subs. Lieut.-Colonel (temporary Brigadier) H. L. Birks, D.S.O., Royal Tank Regiment (21st December, 1942); War Subs. Lieut.-Colonel (temporary Brigadier) F. W. Festing, D.S.O., Rifle Brigade (28th November, 1942).

THE ARMY IN INDIA.—The following appointments and promotions have been announced :—

Commanders.—The following to be a Commander, with acting rank of Lieut.-General :—Major-General A. F. P. Christison, M.C. (12th November, 1942).

The following to be Commanders, with acting rank of Major-General :—Colonel E. N. Goddard, M.V.O., O.B.E., M.C., Indian Army (4th August, 1942); Lieut.-Colonel (temporary Brigadier) F. M. Moore, Indian Army (24th August, 1942); Colonel (temporary Brigadier) F. W. Festing, D.S.O. (28th November, 1942).

District Commander.—The following to be a District Commander :—Colonel (acting Major-General) J. G. Bruce, D.S.O., M.C., Indian Army (26th November, 1942).

GENERAL

THE EIGHTH ARMY.—The following are extracts from a speech broadcast on 23rd January by the Secretary of State for War, Sir James Grigg :—

" . . . To-day we have special cause to extend to our own Army . . . admiration and gratitude. For the destruction of the Italian Empire in Africa is overwhelmingly our show—ours and India's, and Australia's and New Zealand's, and that of the inhabitants of British East and West Africa. . . . ."

Since the Battle of El Alamein, said Sir J. Grigg, the Eighth Army in 80 days had advanced nearly 1,400 miles. " It was an unparalleled feat of military organization that has flung so great a force at such speed so far across an inhospitable desert. To the Quartermaster-General's staff under General Lindsell must go much of the credit of this phenomenal march; and to those often unnamed services, the Royal Engineers, the Royal Army Service Corps, the Royal Army Ordnance Corps, the Royal Electrical and Mechanical Engineers, a full measure of praise is due, as well as to the Royal Army Medical Corps and other ancillary services. This was a joint operation to which every branch of the Army and of the sister Services made its due contribution. Primarily an Army exploit, it would have been impossible if the Air Force had not secured, and maintained, complete mastery of the air. The Eighth Army has fulfilled the task originally allotted to it. Egypt has been freed from the fear of invasion. Italy has been stripped of the last shred of its African empire."

PAY AND ALLOWANCES.—On 26th November, 1942, certain changes in pay and allowances of members of the Forces were announced. In respect of the Army these involved—

(*a*) Increase of outfit allowance from £35 to £45; special allowance for tropical outfit increased from £5 to £10.

(*b*) Child allowances payable to Service men's wives to be from three months before expected date of birth of child (on production of medical certificate) instead of from birth.

(*c*) Increase in the " minimum unit standard " of war service grants (the maintenance standard, after meeting reasonable commitments, below which a serving man's family should not be allowed to fall) from 16s. to 18s.

(*d*) Changes in officers' daily basic pay as follows :—Lieutenants, after 3 years' commissioned service, raised from 13s. to 14s. 6d. ; Captains, after 3 years in that rank, from 16s. 6d. to 17s. 6d.

ARMY CADET FORCE.—A special section of the Territorial Army Reserve of Officers has been created in order to allow for the appointment of cadet officers to a King's commission for service with the Army Cadet Force. In future Lord Lieutenant's commissions will only be granted to cadet officers in exceptional circumstances, and all officers at present serving with the Army Cadet Force will be eligible to apply for the new style of commission.

During the past year the strength of the Army Cadet Force has risen to over 170,000.

51ST HIGHLAND DIVISION.—Every wounded man in the 51st Division in hospital in Egypt received last Christmas as a present from the Polish forces a wallet, bearing the emblem of the Polish eagle, and a greeting card. These gifts have been made in gratitude for the hospitality shown the Polish forces in Scotland.

CIVILIAN AIR RAID CASUALTIES.—The following figures show civilian casualties due to air raids in the United Kingdom during 1942 :—

	Killed	*Injured and detained in hospital*	*Total*
January	112	61	173
February	22	21	43
March	21	13	34
April	938	998	1,936
May	399	425	824
June	300	337	637
July	411	871	1,282
August	403	509	912
September	207	238	445
October	229	370	599
November	24	38	62
December	109	201	310
Grand Total	3,175	4,082	7,257

CANADA

HONOURS.—In the New Year Honours list the following officers of the Canadian Army were awarded the *C.B.* :—Lieut.-General H. D. G. Crerar, D.S.O. (Commander, I Canadian Corps) ; Lieut.-General K. Stuart, D.S.O., M.C. (Chief of the General Staff, Canada) ; Major-General the Hon. P. J. Montague, C.M.G., D.S.O., M.C. (Senior Officer, Canadian Military Headquarters, London) ; Major-General G. R. Turner, M.C., D.C.M., D.A. and Q.M.G., First Canadian Army.

VISIT TO ENGLAND.—Lieut.-General K. Stuart, C.B., D.S.O., M.C., arrived in this country in January for conferences with Lieut.-General A. G. L. McNaughton, G.O.C.-in-C., First Canadian Army, and other high officials.

ARMY CADETS.—The King has given royal recognition to the Army cadet movement in Canada by approving the name " Royal Canadian Army Cadets " and consenting to become their Colonel-in-Chief.

AUSTRALIA

CASUALTIES.—Mr. Curtin, the Prime Minister, announced at Canberra on 27th January that the total Australian battle casualties in all theatres up to 31st December, 1942, were :—Killed, 6,826 ; wounded, 12,371 ; prisoners, 9,059 ; missing, 23,892.

SOUTH AFRICA

OBITUARY.—Major-General D. H. Pienaar, C.B., D.S.O., commander of the 1st South African Division in Libya, was killed in an aeroplane accident while travelling from the Middle East to the Union in December, 1942. He had distinguished himself in the Abyssinian campaign, and added to his laurels in the fighting in the Western Desert.

CASUALTIES.—The number of South African casualties in the war up to date was stated by Field-Marshal Smuts on 22nd Jannary to be :—

	Killed	*Missing*	*Wounded*	*Prisoners*
European officers	175	102	356	796
European other ranks	866	1,098	3,246	10,391
Non-European other ranks ...	74	1,037	535	1,561
Total	1,115	2,237	4,137	12,748

INDIA

INDIAN ARMY RECRUITS.—The India Office has announced that an average of slightly more than 68,000 recruits a month joined the Indian Army during the four months June, July, August and September, 1942. This compares with an average of slightly over 47,400 for the same four months in 1941.

AIR NOTES

ROYAL AIR FORCE

H.M. The King

The King, attended by Sir Archibald Sinclair, Secretary of State for Air, on 5th November visited a receiving centre in London for the R.A.F. and inspected 200 recruits beginning their training to become pilots, observers, wireless operators and air gunners.

On 12th November, attended by Sir Éric Miéville and Group Captain Edward Fielden, the King visited stations of the Bomber Command. Next day His Majesty visited units of the Bomber Command of the 8th Air Force, United States Army.

Appointments

On 11th November, it was announced that Air Marshal Sir William Welsh, K.C.B., D.S.C., A.F.C., was in command of the R.A.F. operating with the Allied Forces in North-West Africa. Sir William's appointment "for special duties" had been announced in the previous August. He was formerly Air Officer Commanding-in-Chief, Flying Training Command.

The following changes, to be effected at convenient dates in the near future, were announced by the Air Ministry on 27th November :—

Air Chief Marshal Sir Arthur W. Tedder, G.C.B., to be Vice-Chief of the Air Staff.

Air Chief Marshal Sir W. Sholto Douglas, K.C.B., M.C., D.F.C., to be Air Officer Commanding-in-Chief, R.A.F., Middle East.

Air Marshal T. L. Leigh-Mallory, C.B., D.S.O., to be Air Officer Commanding-in-Chief, Fighter Command.

Air Chief Marshal Sir Philip B. Joubert de la Ferté, K.C.B., C.M.G., D.S.O., to be an Inspector General of the Royal Air Force.

Air Vice-Marshal J. C. Slessor, C.B., D.S.O., M.C., to be Air Officer Commanding-in-Chief, Coastal Command, and promoted Acting Air Marshal.

Air Vice-Marshal C. E. H. Medhurst, C.B., O.B.E., M.C., to be Assistant Chief of the Air Staff (Policy).

On 29th December, it was announced in the *London Gazette* that Group Captain O. W. de Putron had been appointed Provost Marshal and Chief of Air Force Police, vice Group Captain F. G. Stammers, O.B.E., to date 21st December, 1942.

Promotions

The following have been notified, the dates first mentioned being those of the *London Gazette* :—

13th November, 1942.—Group Captains to be Air Commodores (Temporary), (1st November, 1942).—M. L. Taylor, A.F.C., A. S. G. Lee, M.C., S. P. Simpson, C.B.E., M.C., P. E. Maitland, M.V.O., A.F.C., A. H. Wann, F. M. F. West, V.C., M.C., H. V. Rowley, C. B. S. Spackman, D.F.C., J. W. Mason, D.S.C., D.F.C., A. P. Ledger, M.B.E., J. Whitford, O.B.E., C. R. Steele, D.F.C., F. J. W. Mellersh, A.F.C., A. C. Sanderson, C.B.E., D.F.C., G. E. Wilson, O.B.E., R. M. Foster, D.F.C., F. L. Hopps, A.F.C., A. C. Stevens, W. M. Yool, C.B.E.

Technical Branch, Group Captains to be Air Commodores (Temporary), (1st November, 1942).—H. G. White, G. F. Smylie, D.S.C., L. M. Iles, C.B.E., A.F.C., H. I. T. Beardsworth, C.B.E., T. A. Warne-Brown, D.S.C., G. D. Daly, D.F.C., O. E. Carter, A.F.C., C. E. H. Allen, D.F.C., C. W. Weedon, C. N. H. Bilney, O.B.E., G. Combe.

17th November, 1942.—Air Commodores to be Acting Air Vice-Marshals.—J. W. Jones, C.B. (10th November, 1942), W. B. Callaway, A.F.C. (25th November, 1942).

Group Captain (Acting Air Commodore) to be Acting Air Vice-Marshal.—F. F. Inglis (19th October, 1942).

24th November, 1942.—Air Commodore T. A. Langford-Sainsbury, O.B.E., D.F.C., A.F.C., to be Acting Vice-Marshal (16th November, 1942).

Technical Branch, Air Commodores to be Acting Air Vice-Marshals (24th October, 1942).—O. G. W. G. Lywood, C.B.E., R. S. Aitken, C.B.E., M.C.

27th November, 1942.—Equipment Branch, Group Captains to be Air Commodores (Temporary), (1st November, 1942).—W. Thorne, C.B.E., T. E. Drowley, O.B.E.

11th December, 1942.—Technical Branch, Group Captain to be Air Commodore (Temporary), (1st November, 1942).—D. H. de Burgh, A.F.C.

29th December, 1942.—Air Commodore A. P. M. Sanders, C.B.E., to be Acting Air Vice-Marshal from 25th September, 1942, to 4th December, 1942, inclusive.

5th January, 1943.—Air Commodore A. P. M. Sanders, C.B.E., to be Acting Air Vice-Marshal (1st January, 1943).

8th January, 1943.—Air Commodore L. H. Slatter, K.B.E., C.B., D.S.C., A.F.C., to be Acting Air Vice-Marshal (10th March, 1942), and Air Vice-Marshal (Temporary), (1st December, 1942).

Medical Branch, Air Commodores to be Acting Air Vice-Marshals (25th May, 1942) and Air Vice-Marshals (Temporary), (1st December, 1942).—F. C. Cowtan, A. E. Panter. Air Commodore to be Acting Air Vice-Marshal (17th June, 1942) and Air Vice-Marshal (Temporary).—A. Grant, C.B.E. Group Captains to be Air Commodores (Temporary), 1st January, 1943.—R. H. Knowles, K. Biggs, R. W. Ryan.

Retirements

Air Commodore J. C. Russell, D.S.O., is placed on the Retired List (6th January, 1943).

Group Captain (Temporary Air Commodore) E. L. Howard-Williams, M.C., is placed on the Retired List at his own request, and retains the rank of Air Commodore (23rd November, 1942).

Group Captain C. G. Murray, C.B.E., retired but re-employed on the active list with effect from 31st July, 1940, ceases to be re-employed with effect from 1st November, 1942.

Honours and Awards

Victoria Cross

On 23rd October, it was announced that the King had conferred the Victoria Cross on Flying Officer Leslie Thomas Manser, R.A.F.V.R. (deceased), No. 50 Squadron, in recognition of most conspicuous bravery. Flying Officer Manser was captain and first pilot of a Manchester aircraft which took part in the mass raid on Cologne on the night of 30th May, 1942. As the aircraft was approaching its objective it was caught by searchlights and subjected to intense and accurate anti-aircraft fire. Flying Officer Manser held on his dangerous course and bombed the target successfully from a height of 7,000 ft. Then he set course for base. The Manchester had been damaged and was still under heavy fire. Flying Officer Manser took violent evasive action, turning and descending to under 1,000 ft. It was of no avail. The searchlights and flak followed him until the outskirts of the city were passed. The aircraft was hit repeatedly and the rear gunner was wounded. The front cabin filled with smoke; the port engine was overheating badly. Pilot and crew could all have escaped safely by parachute. Nevertheless Flying Officer Manser, disregarding the obvious hazards, persisted in his attempt to save aircraft and crew from falling into enemy hands. He took the aircraft up to 2,000 ft. Then the port engine burst into flames. It was ten minutes before the fire was mastered, but then the engine went out of action for good, part of one wing was burnt, and the airspeed of the aircraft became dangerously low. Despite all the efforts of pilot and crew, the Manchester began to lose height. At this critical moment, Flying

Officer Manser once more disdained the alternative of parachuting to safety with his crew. Instead, with grim determination, he set a new course for the nearest base, accepting for himself the prospect of almost certain death in a firm resolve to carry on to the end. Soon the aircraft became extremely difficult to handle, and, when a crash was inevitable, Flying Officer Manser ordered the crew to bale out. A sergeant handed him a parachute, but he waved it away, telling the N.C.O. to jump at once as he could hold the aircraft steady for only a few seconds more. While the crew were descending to safety they saw the aircraft, still carrying their gallant captain, plunge to earth and burst into flames. In pressing home his attack in the face of strong opposition, in striving against heavy odds, to bring back his aircraft and crew, and, finally, when in extreme peril, thinking only of the safety of his comrades, Flying Officer Manser displayed determination and valour of the highest order.

The V.C. was also awarded to Flight Sergeant R. H. Middleton, R.A.A.F. (*see* AUSTRALIA).

NEW YEAR HONOURS

The following were among the New Year Honours conferred by the King :—

K.C.B.—Air Marshal Philip Babington, C.B., Air Marshal Douglas C. S. Evill, C.B., Air Marshal T. L. Leigh-Mallory, C.B.

C.B.—Air Vice-Marshal H. V. Champion de Crespigny, Air Vice-Marshal the Hon. R. A. Cochrane, Air Vice-Marshal R. Graham, Air Vice-Marshal A. S. Morris, Air Vice-Marshal G. C. Pirie, Air Vice-Marshal R. P. Willock, Acting Air Vice-Marshal G. R. Bromet, Acting Air Vice-Marshal A. J. Capel, Acting Air Vice-Marshal M. B. Frew, Acting Air Vice-Marshal D. Harries, Air Commodore J. W. Cordingley, Air Commodore J. C. Quinnell.

C.B. (*Civil Division*).—Air Commodore A. D. Warrington-Morris (Retired), Commandant, Royal Observer Corps, from March, 1936, to 24th June, 1942.

G.B.E.—Air Chief Marshal Sir Edgar R. Ludlow-Hewitt.

K.B.E.—Acting Air Marshal John E. A. Baldwin, C.B.E.

C.B.E.—Air Vice-Marshal C. H. K. Edmonds, Acting Air Vice-Marshal W. B. Callaway, Air Commodore C. R. Cox, Air Commodore E. J. Cuckney, Air Commodore R. Harrison, Air Commodore F. L. Hopps, Air Commodore H. M. Probyn, Air Commodore M. L. Taylor, Air Commodore F. J. Vincent, Air Commodore H. S. P. Walmsley, Acting Air Commodore K. L. Boswell, Acting Air Commodore K. B. Lloyd, Acting Air Commodore E. J. Kingston-McCloughry, Acting Air Commodore F. H. Sims, Group Captain W. J. M. Akerman, Group Captain G. C. Banting, Group Captain N. H. D'Aeth, Group Captain W. L. Freebody, Group Captain G. D. Harvey, Group Captain R. Kellett, Group Captain E. R. Manning, Group Captain C. B. R. Pelly, Group Captain J. R. Scarlett-Streatfield, Group Captain J. Silvester, Group Captain L. F. Sinclair, Group Captain P. J. Wiseman, Acting Group Captain A. M. Carey, R.A.F.O., Colonel H. G. Willmott, S.A.A.F.

ORDER OF THE BATH

The following awards in recognition of distinguished services in the campaign in the Middle East were announced on 23rd November :—

G.C.B.—Air Chief Marshal Sir Arthur W. Tedder, K.C.B.

K.C.B.—Air Vice-Marshal Arthur Coningham, C.B., D.S.O., M.C., D.F.C., A.F.C.

C.B.—Air Vice-Marshal Graham George Dawson, C.B.E.

ORDER OF THE BRITISH EMPIRE

The following awards in recognition of distinguished services in the campaign in the Middle East were announced on 23rd November :—

K.B.E.—Air Vice-Marshal Keith Rodney Park, C.B., M.C., D.F.C.; Air Vice-Marshal Leonard H. Slatter, C.B., O.B.E., D.S.C., D.F.C.

Air Efficiency Award

Names of the first recipients of the new Air Efficiency Award (see the JOURNAL for November, 1942, page 357) were announced on 22nd December. Among the seventy officers of the Auxiliary Air Force and the R.A.F. Volunteer Reserve who were granted this decoration were Acting Air Commodores G. H. Ambler and H. Peake; Wing Commanders L. E. A. Healy, O.B.E.; Max Aitken, D.S.O., D.F.C.; R. G. Kellett, D.S.O., D.F.C.; I. R. Campbell-Orde; Sir Archibald P. Hope, D.F.C.; and R. G. Grant-Ferris, M.P.

The medal itself will not be issued until after the War, but those awarded the decoration are authorised to wear the appropriate ribbon—dark green with two narrow central stripes of pale blue.

Personnel

BADGES FOR BOMBER CREWS.—It was announced in November that the Air Ministry had decided that crews of the big bombers should have badges indicating their operational duties. The navigator's badge will be one wing with the letter " N "; the bomb aimer's, one wing with the letter " B "; the flight engineer's, one wing with the letter " E." The present observer's " O " with one wing will not be awarded, but the gunner's " A.G. " in a laurel leaf with one wing, and the pilot's " wings " will remain. Bomber pilots and crews selected for " pathfinder " duties, *i.e.*, to go ahead during a raid to get fires going in the target area as a guide to following aircraft, are to wear distinguishing wings, made of gilt, in addition to the normal R.A.F. wings. The second pair of wings will be worn on the flap of the left breast pocket, below the regulation badge.

RESCUE SERVICE BADGE.—Airmen below the rank of warrant officer when serving in launches in the Air-Sea Rescue Service are to wear a badge depicting a launch at speed, with the letters " A.S.R" embodied in the design.

Royal Observer Corps

In the House of Commons on 25th November, in reply to questions, Sir Archibald Sinclair, Secretary of State for Air, made a statement on certain changes involving the replacement of some members of the Royal Observer Corps over the age of 50. He said :—

" There is no intention of making wholesale dismissals in the Royal Observer Corps. All that is at present being done is to replace plotters and tellers over the age of 50 at Royal Observer Corps centres, who represent a fraction only of the total personnel of the Corps, by immobile young women under 35 whom experience has shown to be particularly well suited for this exacting work. This step has been found necessary in order to maintain at the highest possible level the efficiency of the centres, which are operationally an integral part of the activities of the R.A.F. Fighter Command. Not only has the work at these centres become increasingly complex since the War began, owing to the introduction of new technical devices, but activity is now almost continuous throughout the 24 hours owing to the greatly increased amount of flying which takes place over this country and to the fact that the Royal Observer Corps is responsible for tracking friendly as well as hostile aircraft. The work calls for alert minds, quick reactions, and cool nerves, and the age level of those engaged on it must be lowered if it is to be done with the rapidity and accuracy required."

Women's Auxiliary Air Force

The Duchess of Gloucester, Air Commandant, attended by Flight Officer Sandford, inspected sections of the Women's Auxiliary Air Force at R.A.F. stations in Scotland on 28th and 30th October, and in the Eastern Counties on 9th December.

An officer of the W.A.A.F. was recently appointed for the first time as Deputy Assistant Provost Marshal, in charge of the W.A.A.F. Police in the London Region. In January, ten more were appointed for other centres, not only to promote the work of this branch but to ensure an extension of welfare facilities for airwomen.

DOMINIONS AND COLONIES

AUSTRALIA

Victoria Cross.—It was announced on 14th January that the King had approved the award of the Victoria Cross in recognition of most conspicuous bravery to Flight Sergeant Rawdon Hume Middleton, Royal Australian Air Force (missing), No. 149 Squadron. Flight Sergeant Middleton was captain and first pilot of a Stirling aircraft detailed to attack the Fiat works at Turin on the night of 28th-29th November, 1942. Great difficulty was experienced in climbing to 12,000 ft. to cross the Alps, which led to excessive consumption of fuel. Middleton had to decide whether to proceed or turn back, there being barely sufficient fuel for the return journey. Flares were sighted ahead, and he continued the mission, and even dived to 2,000 ft. to identify the target, despite the difficulty of regaining height. Three flights were made over Turin at this low altitude before the target was identified. The aircraft was then subjected to fire from light anti-aircraft guns. A large hole appeared in the port main plane which made it difficult to maintain lateral control. A shell then burst in the cockpit, shattering the windscreen and wounding both pilots. A piece of shell splinter tore into the side of Flight Sergeant Middleton's face, destroying his right eye and exposing the bone over the eye. He was probably wounded also in the body or legs. The second pilot received wounds in the head and both legs which bled profusely. The wireless operator was also wounded in the leg. Flight Sergeant Middleton became unconscious and the aircraft dived to 800 ft. before control was regained by the second pilot, who took the aircraft up to 1,500 ft. and released his bombs. There was still some light flak and the aircraft was hit many times. The three gunners replied continuously until the rear turret was put out of action. Middleton had now recovered consciousness, and when clear of the target ordered the second pilot back to receive first aid. Before this was completed the latter insisted on returning to the cockpit, as the captain could see very little and could speak only with loss of blood and great pain.

Course was set for base, and the crew now faced an Alpine crossing and homeward flight in a damaged aircraft with insufficient fuel. The possibilities of abandoning the aircraft or landing in Northern France were discussed, but Middleton expressed the intention of trying to make the English coast, so that his crew could leave the aircraft by parachute. Owing to his wounds and diminishing strength he knew that, by then, he would have little or no chance of saving himself. After four hours, the French coast was reached, and here the aircraft, flying at 6,000 ft., was once more engaged and hit by intense anti-aircraft fire. Middleton was still at the controls, and mustered sufficient strength to take evasive action.

After crossing the Channel there was only sufficient fuel left for five minutes' flying. Flight Sergeant Middleton ordered the crew to abandon the aircraft while he flew parallel with the coast for a few miles, after which he intended to head out to sea. Five of the crew left the aircraft safely, while two remained to assist Middleton. The aircraft crashed into the sea and the bodies of the front gunner and flight engineer were recovered the following day. Their gallant captain was apparently unable to leave the aircraft and his body has not been traced.

Flight Sergeant Middleton's devotion to duty in the face of overwhelming odds is unsurpassed in the annals of the Royal Air Force.

CANADA

Units in Ceylon.—Air Marshal Edwards, Commander-in-Chief, Oversea Canadian Air Force, arrived in Colombo in November, having travelled 15,000 miles in the previous few days. He inspected Canadian units stationed in Ceylon, and in a special message thanked the people of Ceylon for their hospitality and co-operation with the Canadian squadrons stationed there.

R.A.F. in North America.—It was announced in Ottawa on 18th December that an entire squadron of the R.A.F. Coastal Command had been transferred to the North

American shores of the Atlantic and was carrying out U-boat patrols along the United States coast. The squadron was still operating the same Hudson bombers with which it was equipped in Britain, and which were originally sent from the United States. Some of the Hudsons took part in the raids on the " Scharnhorst " and " Gneisenau " when they were at Brest.

NEW ZEALAND

LONDON HEADQUARTERS.—In December, the New Zealand War Cabinet approved the setting up of Royal New Zealand Air Force Headquarters for the United Kingdom in London, and appointed Air Commodore L. M. Isitt as Air Officer Commanding. Mr. Jones, Minister of Defence, said that the rapid increase in the number of New Zealanders serving with the R.A.F. in Britain, the Middle East, and India, had made necessary a more comprehensive organization to look after their welfare in liaison with the Air Ministry. The British Secretary of State for Air warmly welcomed the proposal. At the end of December, Air Commodore A. de T. Nevill arrived in England to take charge of the new Headquarters in succession to Air Commodore Isitt.

INDIA

AIR COMMAND.—It was reported from Delhi on 27th October that, because of the continued expansion of the air forces in India, a new post, that of Deputy Air Officer Commanding-in-Chief, had been created. The holder of this post was Air Marshal J. E. A. Baldwin, who had already arrived in India.

REVIEWS OF BOOKS

GENERAL

Baden-Powell. By E. E. Reynolds. (Oxford University Press.) 12s. 6d.

This is a biography of that striking personality, Lord Baden-Powell—defender of Mafeking, founder and leader of the great Boy Scout movement, with which the author has been intimately associated for over twenty-five years. Interesting throughout, the book will appeal especially to Boy Scout enthusiasts. It is divided into two equal parts : the first deals with B.P.'s career in the Army ; the second with the Boy Scouts. The description of the siege of Mafeking is excellent. Indeed, throughout the volume the writer displays a nice sense of balance, proportion and impartiality notwithstanding justifiable enthusiasm for his hero.

NAVAL

The Navy and Defence. The Autobiography of Admiral of the Fleet Lord Chatfield, P.C., G.C.B., O.M., Etc. (William Heineman, Ltd.) 15s.

This, the first volume of Lord Chatfield's autobiography, is not only the record of great service, but an exceptionally well-informed and balanced history of the Navy from 1886, when the writer joined it as a Naval Cadet, to 1932, when as a full Admiral he gave up the command of the Mediterranean Fleet to become First Sea Lord.

The intervening years saw the most momentous changes and developments, with many of which he was personally associated and instrumental in furthering. Pre-eminent amongst these were the improvements which revolutionized the gunnery of the Fleet, and the name of Chatfield ranks high amongst other famous leaders in promoting the Navy's chief art, such as Fisher, Scott, Jellicoe, Backhouse, Dreyer, and others less prominent but who in their time have all played indispensable parts.

Particularly interesting is the account of what was really the birth of the modern Navy in the Mediterranean when that Command was led, driven, and dominated by the vigorous and inspiring personality of " Jacky " Fisher. Chatfield was one of a small committee of young Gunnery Lieutenants which the C.-in-C. called into being to report to him direct on how to advance gunnery and on allied problems. It was a delicate position for these officers, for their Captains might well have resented being by-passed ; but Jacky was a great believer in using young brains and original ideas, and realized that, for the most part, senior officers had not moved with the mechanical progress of the times, and that they knew little of the science of gunnery and, in all too many cases, cared less.

The author is candid about, and even critical of, Fisher's methods, his likes and dislikes, his " ruthless character and scorn of tact." He raises once again the question " whether the Navy could ever have emerged from its old ways in time for the Great War without his forceful acts. . . ." and gives as his verdict that " it could not."

After making very good as a Gunnery Officer in the " Cæsar," at Sheerness Gunnery School, and in the " Good Hope," Chatfield was promoted to Commander at just thirty years of age. He then had the difficult tasks of cleaning up after the same singularly inefficient and distrusted predecessor in two successive appointments. He left the " Venerable " an efficient and happy ship, and purged Whale Island of some undesirable innovations which might have undermined the high standards of even that great establishment. The measure of his success in this rank is shown by the fact that he was promoted to Captain at the bottom of the list, and at the age of thirty-five.

Captain Chatfield had the good fortune to be given command of the specially chartered P. and O. liner " Medina " which took King George V and Queen Mary to India for the Durbar. The following year there began his association with Beatty

which was to lead to their fine partnership throughout the approaching war. It came about in characteristic fashion when Beatty, as Naval Secretary, proposed to nominate Chatfield to command a ship during the summer manœuvres and added, almost as an afterthought, " I am going to hoist my flag in her, but if you don't want to go to sea with a —— like me, you had better say so now." There followed, in March, 1913, his appointment as Flag Captain to the new Rear-Admiral of the battle-cruisers, in the " Lion." New problems of tactics and gunnery were tackled at once by a team with this well-matched pair as leaders: Beatty's vision and enterprise were translated into practical performance in many ways by Chatfield's specialist knowledge and cool judgment.

So we find the Navy, tuned, but yet to be tested in what used to be called " The Great War." The battle cruisers, with the " Lion " at their head, were soon in action; but the Heligoland Bight hardly stretched them, and it was not until the action of the Dogger Bank that the first real trial came, and with it the dawn of some doubts about our material: Director firing, which had been proved an unqualified success in the " Thunderer's " trials of the year before the war, had to be positively forced on a conservative Fleet, and there had not yet been time to equip the battle cruisers; but it was now seen to be the only efficient form of firing in action; the quality of our A.P. shells began to cause serious anxiety; even the design of the great ships themselves seemed to offer criticism in view of the " Lion's " own injuries in the fight.

The account given of Jutland does not claim to be more than the author's actual impressions, and cannot therefore be regarded as replacing or even supplementing the few full and reliable records of that battle. One can well understand that it was hard for the heavily-punished battle cruisers to see the Battle Fleet turn away from the enemy's torpedo attack and so lose vital time; but we are warned by the author against ill-informed criticism of this carefully thought-out manœuvre. In the light of the fate of the far better protected " Prince of Wales," can we not now go further: who dare now say that Jellicoe was wrong in evading what might have been a crippling blow to the Grand Fleet?

Jutland confirmed the worst fears after the Dogger Bank. Our shells were proved to be almost useless, and it was shown beyond doubt that our battle-cruisers were not built to withstand the fire of the enemy's main armaments. Even then it required the most insistent pressure from Beatty and the Commander-in-Chief to make the Admiralty carry out further trials and eventually admit the grave predicament of our Fleet through the fault of their technicians and the failure of the Board to stand up to political parsimony.

When Beatty relieved Jellicoe he took Chatfield with him, first to the " Iron Duke " and then to the " Queen Elizabeth," where the end of the war still found them. He was still a Captain when he became Fourth Sea Lord. As such he was associated with the " all oil " policy, which has been our saving in the present war. Curiously neither he nor other of its advocates have called attention to a further reason why oil fuel is now indispensable: coaling cannot be done safely at night without bright lights, and a fleet which had to replenish with that fuel during the hours of darkness would be a positive magnet for air attacks.

With Beatty's arrival at the Admiralty as First Sea Lord, Chatfield was given the more congenial post of Assistant Chief of Naval Staff where, once more, he could play an important part in promoting the gunnery efficiency of the Navy. There followed a series of increasingly important Flag appointments, in each of which he left his mark, culminating in those of Commander-in-Chief of, first the Home, and lastly the Mediterranean Fleet.

With this the volume closes. Packed with interest and information, it is an education in itself and as such should be widely read, especially within the Navy. It will leave the reader eager for a further record of even greater days in this most distinguished career.

F

MILITARY

Paratroops. By Captain F. O. Miksche. (Faber and Faber.) 10s. 6d.

This is an instructive study of the history, organization and employment of airborne troops. The early portion of the book deals with the development of the airborne idea and includes a description of the use made of airborne forces in the present war up to the fall of Crete. The author then goes on to discuss their tactical employment and organization. He has a chapter on " The Air Arm with Airborne Troops " and concludes with a consideration of defensive action against them.

As Liddell Hart says in a preface, Captain Miksche is exploring almost virgin country, and his interesting book may be commended to all who are interested in the latest developments of the art of war.

Philip Howell : A Memoir. By his Wife. (George Allen and Unwin, Ltd.) 15s.

This book will be of special interest to those of the older generation who were Howell's contemporaries. It is most readable and very human.

Philip Howell was a fine soldier and a striking personality. Commissioned into the Indian Army in 1897, he joined the Guides Cavalry. He soon showed unusual promise. After varied experiences he became an instructor at the Staff College, Camberley, at the early age of 34. In 1913, he transferred to the British Service and was posted in the rank of Major to the 4th Hussars. With that regiment he went off to war in France in August, 1914. His Commanding Officer was soon killed, and Howell commanded the 4th Hussars till March, 1915. Thereafter he served as Brigadier-General, General Staff, with the Cavalry Corps and XII Corps in France, with General Mahon in Salonica, and finally in France again with the II Corps. He was killed in October, 1916, at the age of 38. His Corps Commander (now Field-Marshal Sir Claud Jacob) wrote of him : " He was the most capable staff officer I have ever come across in all my service."

Four-fifths of this book are concerned with the period of the last war from 1914 to 1916 and consist mainly of extracts from letters written by Howell to his wife. They are full of interest.

Principles of Army Instruction. By C. W. Valentine, M.A. (Gale and Polden, Ltd.) 1s.

The object of this excellent pamphlet is " to help officers and non-commissioned officers in the important work of instruction," and few people whose business or pleasure it is to do any sort of teaching will fail to profit from a study of its 33 short and lucid pages.

The author is Professor of Education and Director of the Department for the Training of Teachers in the University of Birmingham. He has made a special study of the methods of Army instruction, and this little book was written at the suggestion of the War Office. The author's royalties on the sale of the booklet are to be handed to the Red Cross Prisoners of War Fund.

AIR

Winged Mars. Vol. I. The German Air Weapon, 1870–1914. By John R. Cuneo. (The Military Service Publishing Co., Harrisburg, Pa.) $2.50.

Mr. Cuneo says in his Preface : " A study which I began of the influence of aircraft on the opening battles of the First World War revealed that no history accurately portrayed the pre-war development of the air weapon. That gap led to the collection of the material which was the basis of this volume. . . . Although the attention in this history is focussed on German developments, an outline of the general growth of European air power is included. A second volume will carry this account through the campaigns of the First World War. Against the background supplied by these books will be built a third : a history of the air weapon of the United States."

In seventeen chapters Mr. Cuneo traces the wayward and uncertain path pursued by German aviation from its first crude beginnings down to the opening of hostilities in 1914. He describes the early experiments with balloons, the organizing of a primitive kind of anti-aircraft defence, the coming of the dirigible, the rather cool reception given to the flying machine, the visit of Orville Wright to Germany in 1909, the more successful attempt of Hubert Latham to put over the new invention; the grudging admission that there might be something in aviation after all and the stages by which it progressed, slowly and painfully, down to the opening of the war in August, 1914. In Germany, as in other countries, it proved to be a very hard task to persuade the military and naval hierarchies of the day that there was anything more in the short flights which they witnessed than "a circus stunt." It was only when Major Wilhelm Siegert (who died in 1929) began about 1910 to make himself a nuisance to his Service chiefs that military aviation showed any signs of being taken seriously. "With a biting tongue and pen he tried to hew his way through the red tape of military bureaucracy and to halt the studied disregard of aviation practised by the pre-war German Army. How at times he escaped court-martial—the fate of his American prototype, General William Mitchell—remains a mystery. The debt of the German air force to this man, both before and during the war, was immense" (p. 107).

German military historians, says Mr. Cuneo, have blamed the War Ministry for Germany's neglect of military aviation before 1914. "Actually, the Army sided with the War Ministry. Its disregard of the General Staff was astounding. In spite of the warnings of Moltke and others, it saw no use for an air force. The airplanes and dirigibles were maintained chiefly as a bit of gold braid on its uniform for the public eye" (p. 133). This failure to appreciate the value of the air weapon was not peculiar to the Reich. "An extremely conservative attitude towards the employment of aircraft was not limited to the ranks of any one nation, but on the contrary was held by the most influential officers in all armies" (p. 145).

The aircraft was regarded as an instrument solely for reconnaissance and its use as a weapon of combat was not contemplated. Even in the former role its value was considered to be dubious. The French Service Regulations of 1913 denied the importance of information obtained by aircraft; only cavalry, it was laid down, could obtain exact and continuous information. In Britain a similar view prevailed. It is not surprising, therefore, that each of the belligerents was able to muster in 1914 only a contemptible little army of the air. Mr. Cuneo thinks Germany had about 180 aircraft, and Britain, France and Belgium had a little over 200 between them. In a number of Appendices he gives details of the German, British and French machines of 1914, as well as of the German airships. References to the authorities on whom he relies are relegated to 84 pages of Notes following the text, and a useful bibliography of 26 pages and an index complete the book. It is illustrated by the author.

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